

**AID AND PEACE: A CRITIQUE OF FOREIGN ASSISTANCE, CONFLICT
AND DEVELOPMENT**

A Dissertation

by

SHAHRIAR RAHMAN KIBRIYA

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

December 2011

Major Subject: Agricultural Economics

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Approved by:

Chair of Committee,	Edwin C. Price
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ABSTRACT

**Aid and Peace: A Critique of Foreign Assistance, Conflict
and Development. (December 2011)**

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Chair of Advisory Committee: Dr. Edwin Price

In 2000, the World Bank estimated that 2.8 billion people lived on incomes of less than \$2.00 a day. Meanwhile about forty percent of the world's population endured conflict, most of them from the same subset. The implementation of foreign assistance to mitigate poverty and conflict is a key focus of politicians, bureaucrats and social scientists. The goal of this research is to discover relationships among foreign aid, conflict, and socio-economic development, and assess the implications.

Other evaluations either approach this issue from a hedonistic, theoretical standpoint, or follow a stylized project evaluation method. This research is intended to create a bridge between the two approaches by: 1) proposing theoretical models of assistance and conflict accounting for current status quo, and 2) introducing novel empirical methods to analyze the causes and effects of development, intervention and conflict.

The research begins with a comparative analysis of different schools of thought concerning foreign intervention, conflict and development. Contemporary philosophies

and policies provide the basis for assumptions and enquiries addressed in the latter part of this dissertation. The review is followed by a critique of relevant data and their sources. A theoretical model of foreign assistance allocation and its possible impacts on conflict is proposed. The theoretical model is verified through an empirical examination using inductive casual inference methods. It is concluded that under current mandates and policies, aggregate foreign assistance has no effect on conflict and development in poor countries.

Research is then directed toward analyzing the effect of foreign assistance on conflict, disaggregated by sector. Agricultural and food security assistance were identified as the most effective method of mitigating conflict. The next segments of research concentrate on agricultural development. A model of agricultural development is proposed that will promote food security and mitigate conflict. In the last analysis, a direct causal relationship is found between commodity prices and conflict. Findings are summarized in the conclusion, and recommendations are provided for policy re-evaluations.

DEDICATION

To the loving memory of Dr. Norman Borlaug

To my family who made sacrifices to make my life easier

To Professor Edwin Price who has always supported and inspired me

To my friend Karan Advani who has always believed in me

Please accept the fruit of my philosophical training as my deepest expression of
gratitude.

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NOMENCLATURE

DAG	Directed Acyclic Graph
UNDP	United Nations Development Program
FCI	Fast Causal Inference
OECD	Organization for Economic Co-operation and Development
GES	Greedy Efficient Search

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CHAPTER I

INTRODUCTION AND OVERVIEW

1.1 Introduction

“We must embark on a bold new program for ... the improvement and growth of underdeveloped areas. More than half the people of the world are living in conditions approaching misery...”

January 20, 1949, President Truman

The inter-relationships among foreign aid, poverty and conflict, and their implications for poor and rich countries, are an emerging area of research in economic sciences. Contemporary economists¹ have studied poverty, inequality and development and their causes and consequences for many years. Collier (2000), Keen (2000), Goodhand (2001,1999), Baulch (2000), Bhalla (1997), Nelson (1998), Blomberg et al. (2004), Luckham et al. (2001), Waal (1989)² and many other prominent social scientists connect poverty with conflict. Yet, even after several Bank of Sweden prizes³, a number of John Bates Clark medals⁴, establishment of many poverty research centers, along with publications in high profile journals on foreign assistance, causes and consequences of conflict and development, remain a subject of debate. To eradicate poverty and conflict, international organizations, such as the World Bank, International Fund For Agricultural Development, Asian Development Bank, United Nations and countries including the

This dissertation follows the style of *American Journal of Agricultural Economics*.

¹ Germane works and views discussed in Chapter II.

² Elaborate discussion in Chapter II about the works of these philosophers.

³ Nobel Prize in economics.

⁴ Most prestigious prize in economics for below forty economists.

United States, United Kingdom, Japan, Canada and France, have devoted billions of dollars worth of donations, aid, loans, food support and military intervention. Burnside and Dollar(2000), Sach (2005) Goodhand(2001), Easterly(2007), Collier (2001,2008) et al. have asserted and demonstrated that the above entities, with their policies and interventions, have been unsuccessful in eradicating global poverty and conflict. Through this dissertation, the relation between conflict, development, aid and related variables, will be explored and assessed.

1.2 Scope of Research and Questions

Scholars generally agree that foreign assistance, poverty and conflict have a high correlation with conflict but fail to reach a unanimous consensus on the underlying causalities. The ineffectiveness of foreign aid, conflict reduction strategies and poverty eradication strategies can largely be attributed to a failed understanding of the causal relationships and consequences among these variables. Contemporary research is based on qualitative and quantitative analyses from different countries and regions. However, many researchers do not create the theoretical and empirical bridge between foreign assistance, conflict and development. Possible scopes of contribution to contemporary literature dealing with these variables are described below.

1.2.1 Need for Integration

There have been numerous studies concerning foreign aid, poverty inequality and conflict, but unfortunately, none of them consider all of these variables together in a theoretical and empirical model. The first initiative of foreign development via assistance was the Marshall Plan. This plan was partly enacted to assist countries that

were plagued by conflict and poverty due to the struggle and hegemony of Communism. Currently, countries that obtain the highest amount of foreign assistance and attention, such as Iraq, Afghanistan and Sudan, are also marred by conflict, political instability and poverty. It appears that the intention and goals of foreign development have remained consistent through time. Yet most of the contemporary models that analyze the effects of foreign and socio-economic development do not consider conflict as a variable. The models that do consider conflict and foreign aid omit inequality or other germane socio-economic indicators. To explore the mechanics of conflict, poverty, development and foreign assistance, an integrative model is required.

1.2.2 The Necessity of Applied Theoretical Models

The seminal theoretical models of conflict are perhaps too abstract to be implemented in pragmatic settings of international development. There exists a scope of more applied mathematical models with simpler and practical assumptions. Models are needed that explore both developed and underdeveloped economic views and incentives with assumptions that mimic real world scenarios. Such propositions can build empirical notions that can successfully contribute towards eradicating conflict and enhancing living conditions.

1.2.3 Collection of Data and Calibration

Data are available through national and international organizations on conflict, violence, foreign assistance and socio-economic indicators. However, it is a challenge to collect data from the diverse sources in a manner that would enable quantitative analysis. The data also needs to be calibrated and categorized across time and expressed in

appropriate units. Further, it is also important to recognize the inconsistencies and shortcomings of particular data sets and adjust them according to the needs of research.

1.2.4 Causal Inferences and Latent Variables

Poverty and conflict indexes are usually numbers derived from only one or two social phenomena and are therefore too simplistic to reach conclusive policy recommendations. To analyze socio-economic conditions, one needs to consider an array of socio-economic and political variables that affect poverty. For example, if the poverty index is derived from calorie intake per day, the researcher might also want to consider literacy rate, life expectancy, per capita income, income inequality, etc. The empirical quantitative analysis concerning poverty, conflict or even foreign aid often times does not encompass all the relevant socio-economic and political variables. These “observable” unobserved variables may create spurious regression analyses. Recent researchers (Collier 2000, Keen 1998) have claimed that poverty and conflict are often times driven by latent unobservable variables, such as greed and/or grievances. However, since these variables cannot be measured, there is no empirical evidence whether greed and grievances actually move poverty towards conflict or vice versa.

Foreign assistance for agriculture and food security have been criticized (Barret 2001) by contemporary policy makers and researchers. Causality notions can also be used to analyze commodity prices and conflict in developing countries. The positive relationship between commodity prices and unrest in a country is fairly unanimous. However, the exact causal relationship between different commodities and violence may provide important information flow for specific agricultural policies, which would

enable donors to implement and undertake successful policies. There is an underlying need of causal inference and probabilistic calibration. Most economic research in related areas estimates only the effects of explanatory variables; it does not discover causal trends. Although some socio-political research attempts to discover causal trends, it does so by using grounded theory, critical realism or case studies. An inductive probabilistic causal method to discovering the relationship of poverty, conflict and aid has not been developed and utilized.

1.2.5 Sectorial Development and Assistance

While evaluating and criticizing foreign assistance projects, current studies only consider aggregate assistance when examining the impact of development. However, in order to appropriately allocate resources and reform development policies, it is essential to study individual aid programs and sectoral assistance. The examination of the sectoral assistance data can reveal the allocation and impact of assistance on government administration, civil society, agricultural and food security, education, economic development and health care.

1.2.6 Regional Separation and Stylized Models of the Cost of Conflict

Most relevant research consists of models deduced from specific parts of the world. A “one-size fits all” approach is often recommended as a conclusion and as policy recommendations. However, poverty and conflict in Sri Lanka (with a 100% literacy rate and a relatively high per-capita income) cannot be compared with the poverty and conflict in Sudan (with low literacy rates and a relatively low per-capita income). Theoretical models, which takes into consideration the current and specific

tumultuous situations of particular regions, can be incorporated into differential policies. Although a notion of rational opportunity cost has recently been mentioned by Collier (2001), most researchers view wars or conflict as irrational behavior (Keen 1998). In a conflict-prone society, violence may not be such an irrational or awkward option. A rational agent may also engage in conflict if his utility from engaging in violent activities is higher than joining the labor force. An economic analysis that considers conflict as rational behavior of the underprivileged will be effective in designing appropriate incentive-based models for the underprivileged of conflict-prone nations.

1.2.7 Choice of Appropriate Development Policies

One of the most important decisions made by the donor entities is determining subsidies, food aid and technology implementation in conflict prone nations. Suggested policies which result from conventional hypothesis testing, more often than not relies on rejecting false nulls. However, in a real the world scenario where decisions have to be made to save the lives of the impoverished and hungry, a “type 1 error” may cause detrimental effects. A novel approach to developing decision-making using probabilistic inference scenario analysis should be more appropriate, especially in conflict zones.

1.2.8 The Relationship Between Commodity Prices and Conflict

Rising food prices has been identified as both the cause and effect of radical violence in African countries. Despite the inception of food aid programs, most African countries still have dire shortages of food and experience increasing food prices. Although food and agricultural aid has been advocated to increase lately, critics claim that agricultural aid has inefficient policies and, thus, is ineffective. Perhaps policy

makers and donors are not focusing on appropriate commodities. If causality paths can be established between conflict and specific commodity prices, then policy makers and donor entities would be able to find solutions to food shortages and mitigate conflict. A probabilistic causal analysis would provide appropriate insights into conflict and its relationship with different commodity prices.

1.3 Document Structure and Research Approach

Chapter I explores the scope and purpose of the study. Research questions and important hypotheses are depicted in this chapter.

Chapter II begins with comprehensive literature about foreign aid, conflict and socio-economic development. Contemporary scholars are divided into three schools of thought. Each school of thought and prognosis of its proponents is discussed to provide a better understanding of foreign assistance implementation and policies. Conflict, collective actions and regional differences are explored in this chapter, as well. The chapter concludes with a comparative analysis of the explored relationship between conflict, socio-economic development and foreign intervention.

Chapter III gives a brief explanation and critique of the data available on foreign aid, conflict and socio-economic development. Both the criteria and mechanism for receiving aid from the donor entities is explored. The discussions are initiated with an empirical investigation of disbursement of foreign aid. The examination continues with an expansive study and comparison of per-capita aid disbursed to developed nations. A brief description of conflict data and its calibration are provided through the following

sections. The socio-economic indicators are listed and described along with the respective data sources.

Chapter IV concentrates on developing a theoretical model of foreign aid and conflict, considering recipient and donor entities. The theoretical model is followed by an empirical validation using time series causality analysis. The chapter concludes with recommendations and suggestions that would create more efficient foreign aid policies.

Chapter V examines the effectiveness of different sectorial foreign aid in mitigating conflict. It commences with an exploration of sectoral aid disbursed to all countries and to conflict-prone nations, such as Iraq and Afghanistan. The analyses reveal different aid strategies by donors. A panel data analysis is constructed, which shows the influence of the different types of foreign aid in conflict and violence.

Chapter VI includes a theoretical model of conflict in the context of Sudan. The theoretical model is based upon the strategies of the World Food Program, designed to elevate food security and thereby eradicate conflict.

Chapter VII proposes efficient causal algorithms to predict and design policies for developing nations with small numbers of data points. The empirical explorations of this study consider commodity prices and violent act data from Sudan. Through a bootstrapping Bayesian network approach, a causal relationship of essential commodity prices and conflict is discovered.

Chapter VIII evaluates the whole document and provides conclusions and recommendations. The dissertation considers almost all the facets of international

foreign assistance that deals with conflict prone impoverished regions. The chief contribution of this research lies in the following seven points:

1. Summarizes and compares all the existing theories, policies and literature.
2. Critiques the germane socio-economic and conflict data available to examine foreign aid efficacy in conflict-prone regions.
3. Proposes an applied theoretical model of donor and receiver behaviors in conflict-prone nations.
4. Examines the causal relationships of foreign assistance, violence and other socio-economic indicators for all the donor and receiver countries.
5. Thoroughly discusses the allocation and implications of assistance provided in the most important sectors. Analyzes the need and effect of agricultural and food security assistance during mitigating conflict.
6. Designs an efficient model of mitigating conflict through incentive-based agricultural development in conflict-prone Sudan.
7. Proposes a Bayesian bootstrap method to explore commodity price relationships with conflict; thereby, devising efficient mechanisms of agricultural and food security aid in conflict-prone regions.

CHAPTER II

A COMPARATIVE ANALYSIS OF FOREIGN AID, CONFLICT AND DEVELOPMENT

2.1 Introduction

“... the unjust is what violates the proportion; for the proportional is intermediate and the just is proportional.”

Nicomachean Ethics, Aristotle

Post-Socratic philosophers were the first to incorporate both philosophical and practical aspects of justice, law and resource allocation. The idea of deprivation and just division of resources is the most important attribute of Plato's Republic. However, even after 2,500 years of deliberation, philosophers and scholars still have different perspectives on poverty, deprivation, (un)just demands of citizens and proper benevolence of social planners. Foreign development policies, practices of disbursement of resources and their implementations are controversial, yet intricate. Although the intention to eradicate poverty and mitigating conflict in the developing world remains constant, plans and scope keep changing. Contemporary thoughts and actions related to foreign assistance (intervention), conflict and development are evaluated and discussed in this chapter.

2.2 Foreign Assistance and International Development

The post Marshall Plan, foreign development literature and practices all have an influenced and are dominated by three schools of thought and action. They may be categorized as optimistic, realistic and pessimistic critiques.

2.2.1 The Optimists

Optimists propose new reform policies, provide accounts of successful development agendas and work tirelessly with development agencies to implement new foreign development programs. This group consists of academics, policy makers, politicians, development organizations and even rock stars, actors and actresses. An example proponent of this faction is Jeffrey Sachs of Earth Institute, Columbia University. Sachs, through his publications and policies, has envisioned and proposed the “end of poverty.” In his book, *The End of Poverty: Economic Possibilities for Our Time* (2005), he claims that developed countries should increase their combined annual foreign aid budgets to between \$135 billion and \$195 billion for the next decade. Although differing in his execution style and plans, Nobel Laureate and former World Bank President Stiglitz (2002) also advocates for increases in aid levels. According to Sachs, with appropriate allocation of the increased money, extreme global poverty of under a dollar a day could be eliminated by 2025. Jeffrey Sachs claims that select country-wise planning would be in order as a means to alleviate poverty. He identifies the common factors that affect a nation’s ability to enter the world market. The factors are: corruption; legal and social disparities based on gender, ethnicity or caste; diseases and epidemics, such as AIDS and malaria; lack of infrastructure, such as but not limited to transportation, communications, health and trade; unstable political landscapes; trade and political protectionism; and geographic barriers. Sachs discusses each of these issues and offers feasible solutions to each. He also proposes specific, short-term solutions, such as increasing the availability of anti-mosquito (anti-malarial) bed nets in Sub-

Saharan Africa and encourages debt cancellation for the world's poorest economies. Sachs concurs with the UN's calculation that 0.7% of the GNP of first world countries would be enough to eliminate hunger and endemic disease if devoted to the poor of the world.

The United Nations' Millennium Development Goals (MDGs) have been designed as the first step towards eliminating extreme poverty, affecting 1.1 billion people worldwide. The MDG comprises eight international development goals that all United Nations member countries and 23 international organizations agreed to accomplish by the year 2015. These goals are: eradicate extreme poverty; achieve universal primary education; promote gender equality and empower women; fight disease epidemics, such as AIDS; reduce child mortality rates; improve maternal health and ensure environmental sustainability; and develop a global partnership for development.

Several scholars have supported the MDG. Grown (2005) states that increasing reproductive health rights, improving infrastructure to augment women's time concerns, ensuring property entitlement for women, having girls complete secondary school, reducing gender inequalities in employment, increasing positions held by women in government and combating violence against women would accomplish the MDG. She encouraged donor countries to spend more resources on these issues. Heyzer (2005) asserts that more emphasis should be provided in establishing gender equality in order to eradicate poverty in developing countries. Kabeer (2003) claims that if women can increase their bargaining power within the family, it would enable to access enhanced

health care and nutrition. This approach will ensure better health for expectant mothers and healthier babies. She along with Noeleen (2005) affirms that empowerment of women and access to jobs will facilitate a reduction in child mortality. She further claims that empowering women by creating economic opportunities will reduce their active participation in prostitution, thereby decreasing the spread of disease. The United Nations' claims that few countries' MDG programs have been successful in moving these countries towards these goals (UN Development Report 2006). In support of this claim, the World Bank poverty database shows poverty rates have decreased in India and China; however, according to the same source, a significant reduction in poverty has yet to be achieved in Sub-Saharan Africa.

Another recent model for foreign development is the Millennium Challenge Corporation (MCC). MCC, created by former President George W. Bush, takes a businesslike approach to development assistance. Countries that receive assistance are selected on a competitive basis through a set of 17 indicators intended to evaluate a nation's efficiency at ruling justly, investing in people and fostering enterprise and entrepreneurship. The Bush Administration rationalized this approach by stating that development assistance is more efficient in countries with good economic policies, such as free markets, low corruption and good governance (MCC Report 2007).

Although Jeffrey Sachs, MCA and MDG all lead the cavalcade of optimists, it was Rostow and Norman Borlaug who understood the importance of foreign development and proposed and/or implemented most of these ideas. In his famous publication, *Stages of Growth*, Rostow claimed that "an increase of \$4 billion in external

aid would be required to lift all of Asia, the Middle East, Africa, and Latin America into regular growth, at an increase of per capita income of say, 1.5% per annum” (Rostow 1960). He further stated that the precondition of development depends on social overhead capital, such as railways, ports and roads; designing an economic mechanism to move to manufacturing from agriculture and trade. Borlaug was the primary change agent of the Green Revolution in India through technology transfer and policy reform. In his testimony in front of Indian politicians and policy makers, he stated that the farmers need “Fertilizer, fertilizer, fertilizer, credit, credit, credit, subsidy, subsidy, and subsidy.” Additionally, Borlaug spoke for enhanced transportation, communication and infrastructure (Hesser 2006). Even before Rostow and Borlaug, the initial UN expert group proposed to increase foreign assistance similar to what Sachs is proposing in present times. The UN group was even more precise, stating that “a two percent increase in the per capita national incomes cannot be brought about without ... a sum of money ...of about \$3 billion a year” (UN Expert Group 1951, from Easterly 2007). The United Nations reforms have been a yearly scenario since 1951. Along with current MDGs, some recent reorganization includes the Monterrey Conference on Financing for Development (2002), the Rome Declaration on Harmonization (2003), the Paris Declaration on Aid Effectiveness (2005) and the High-Level Forum on Aid Effectiveness in Ghana (2008).

Similar to the UN, the World Bank is trying to increase selectivity, involve host governments in the projects and enhance the amount of pecuniary assistance or loans provided. Former World Bank President Wolfensohn (2001) stated, “If we are serious

about...meeting multilateral development goals we have all signed on to, we must double ODA (overseas development assistance) from its current level of about \$50 billion a year.” After its inception in 1946, the World Bank had its first reorganization in 1952. Further reforms came in 1972, 1981, 1987, 1991 and 1993 (Kapur et al. 1997). The United States foreign aid effort commenced from 1948 through the Marshall Plan. It was reorganized in 1951, 1953, 1955 and 1960. The United States Agency for International Development (USAID) was officially created on 1961. Further changes in USAID occurred in 1973, 1979, 1985, 1989, 1992 and 2000. In 1999, USAID was moved back into the State Department (Easterly 2007).

2.2.2 The Realists

The “realists,” consisting mostly of academics, acknowledge and critique the shortcomings of foreign assistance and make suggestions to create a more efficient aid market. Collier, Dollar and his World Bank colleagues are the main proponents of this faction. In influential research funded and promoted by the World Bank, Burnside and Dollar (2000) discovered that aid has a positive impact on growth in developing countries with good fiscal, monetary and trade policies. While in the presence of poor policies, aid has no positive effect on growth; Dollar and Kraay (2001) claim that growth in aggregate per capita income is typically accompanied by enhanced income of the poor. Furthermore, they discovered that policies that induce growth also enhance the livelihoods of the impoverished. Dollar et al.’s insight is clear; the effect of aid on poverty reduction is maximized when assistance is allocated to countries that have large

amounts of poverty in the presence of good policy. In fact, the World Bank (1998) stated, “There is no value in providing large amounts of money to a country with poor policies.” However, no evidence was discovered that bilateral or multilateral aid disproportionally goes to less corrupt governments with good policies (Alesena et al. 2008). On the contrary, Alesena et al. (2008) discovered that higher levels of foreign aid increases corruption.

However, the question remains that if aid is provided only to the governments that have “good policies,” then impoverished people of poor, corrupted countries would always be deprived. The World Bank’s juxtaposition of a “poor country with a good policy” appears to be paradoxical. There are no poor countries with immaculate policies. The proposed strategy can be even more dangerous for conflict-prone poor nations, as the standard measurement always seems to characterize these areas as having “fragile governance.” Thus, aid in conflict zones initiates a bigger dilemma as conflict arises from failing governance and governments. The absence of a free market and a lack of food productivity in conflict zones increases the need for agricultural import and food aid. However, poor governance makes foreign aid prone to failure. Unfortunately, most of the donor countries or agencies do not take appropriate steps to protect these fragile governances and economies (Stewart 2000).

Organizations, such as the World Bank and the International Monetary Fund (IMF) tend to be blind to horizontal inequities and conflict issues (Klugman 1999). Both the World Bank and the IMF are limited by their mandates to addressing issues of economic governance. Economic conditionality can undermine the capacity and

legitimacy of the state, which is forced to cut back on social services. Moreover, aid often fails to ‘trickle down’ and reach the chronically poor—a problem experienced in stable contexts but accentuated in areas of conflict. The lack of security, access and voice magnify this problem even more. Research also points to the potential for aid to undermine social contracts between states and citizens or to inadvertently “do harm” by fuelling the war economy (Anderson 1999). In Liberia, warlords practiced “people farming” to loot food aid (Atkinson 1997). From the existing literature and case studies, it is evident that the perceived stratagem of the world organizations and governments is to provide aid to corrupted, conflict-prone nations only in extreme circumstances. These nations are often neglected when conflict and/or poverty is brewing. Along these lines, Kanbur (2005) proposed a new formula to allocate aid for the developing world, which will disburse aid solely on the outcome resulting from previous aid allocation. Donors mostly choose to avoid conflict zones altogether, implying that they prefer not to work “in” conflict (Goodhand 2000). Very few policies have been designed up to now to work “on” conflict in a conflict-ridden society. Putzel (1999) questions the “gloomy science” view of politics, in which all political processes are viewed as a zero sum game. “The real world of politics is rarely a crude struggle of rich against poor; it is also about accommodation, compromise and joint gains” (Moore 2000). Critics argue that in practice, to be “coherent” means that development and humanitarian objectives are subsumed by the political and economic interests of Western powers. In other words, they must be “coherent” with the prevailing political logic of the “liberal peace” (Duffield 2001).

Philosopher Collier is the most cited author among the conflict zone development professionals. He claims that, while most of the five billion people in the “developing world” are prospering, a certain group of impoverished people (mostly in Africa and Central Asia) are trapped. Collier proposes that development assistance should be focused heavily on these unfortunate citizens. According to Collier, the traps consist of:

- The Conflict Trap—Civil wars with an estimated average cost of \$64 billion each or coups.
- Bad Governance in Small Countries—Unfortunately, Collier et al. (2008) discovered that promoting democracy may not be a feasible solution for development in conflict-prone nations. Knack (2000) agrees with Collier, claiming that foreign aid does not promote democracy. Based on world data, they show that democracy constrains government repression, which may entice rebellion. They conclude that nations with higher income can use democracy for peace; however, for nations with lower incomes, democracy may not be conducive to peace. Collier agrees with Dollar et al. that bad governance and policies can destroy an economy.
- The Natural Resource Trap—Collier et al. (2000) states that a higher amount of natural resources in a developing nation may increase the possibilities of civil war. He further suggests that having to rely on natural resources can stifle other economic activity and lead to bad governance, coups and conflict.
- Bad Neighbors—African and Asian countries with impoverished and conflict-prone neighbors find it almost impossible to tap into world economic growth.

Collier proposes the following strategies to eradicate conflict and improve the socio-economic conditions in conflict-prone nations (Collier 2000).

- Aid agencies and international organizations have to be able to work in conflict zones, accepting more risk.
- Ordinary citizens should not support poorly informed lobbies whose efforts hinder the progress of the aid agencies.
- Appropriate military interventions, such as Great Britain's intervention in Sierra Leone, should be encouraged in order to guarantee democratic regimes.
- International charters are needed to encourage good governance and enhance democratic governance.
- Trade policy needs to be reformed and support the establishment of free trade to provide preferential access to Bottom Billion exports.

2.2.3 The Pessimists

The pessimists group believes that reformation and the execution of aid is futile and corrupted. A leading scholar among the pessimists is New York University Professor William Easterly. In his book, *The White Man's Burden: Why the West's Efforts to Aid the Rest Have Done So Much Ill and So Little Good*, Easterly raises questions about whether the aid money is actually reaching the poor. He claims that the West has a pressing, paternalistic and almost racist attitude towards underdeveloped economies. Easterly's condemnation of foreign aid is that the chief reason for lack of development progress in modern times is not the lack of aid; instead, he feels it is non-democratic

governance and corrupt politics and administration in countries receiving this aid. Easterly opposes the views of Western philosophers and policy makers regarding planning poverty eradication programs for developing countries (Easterly 2006). He labels the international development policy makers who propose strategies and allocate resources as “planners/” The planners are castigated because of their lack of accountability and bureaucratic endeavors. On the contrary, Easterly states that development occurs through “homegrown” actors, termed “searchers,” who have the incentive to work in the field and are not driven by seeking grants. “Planners” believe that they already have appropriate solutions for development, while “searchers” seek answers by evaluating the society. Easterly criticizes programs such as Millennium Development Goals (MDG) and claims that the perfect plan for international development would be “no plan at all.” Easterly denounces planners for being more interested in increasing money devoted to aid, rather than concentrating on increasing the efficiency of aid policies. Easterly’s thoughts are supported by contemporary economists and policy makers, such as Sen (2006), Bannerjee (2007), Lavergne (2006), M Prokopijevic (2006), Bonne (1996) and Svensson (2000, 2003).

Nobel Laureate Amartya Sen (2006) has praised Easterly’s efforts to identify the shortcomings of foreign aid implementation policies. Sen also points out the impotency of the imperialistic behavior of guardians from the developed world, citing the Bengal famine. He showcases the disastrous consequences of the famine, brought on by the short sightedness of the British Raj. He further states his admiration for the “searchers,” such as Bangladeshi development activists Mohamed Yunus and Fazle Hassan Abed.

While praising Easterly's perspective, he also criticizes Easterly's negligence of the diverse economic problems and uncertainties of the developed world. Banerjee (2007) provides an account of disappointing foreign development projects and cites an abundance of evidence showing that aid cannot assist in the progress of underdeveloped nations, but at best, it can only assist people survive. Their hypothesis is strongly supported by empirical estimations that reveal no relationship between aid and growth (Boone 1996). Banerjee (2007) further states that the Millennium Challenge Account (MCA) has been created to make financial aid more efficient. However, most impoverished, conflict-prone countries do not qualify for that aid. This is may be another instance where the West, through its strong paternalism, is unable to help the neediest of the world.

A more interesting thought of aid strategy (compared to MCA) has been recently introduced by Svensson (2000). He proposes a model that would direct more aid to countries by using an ex-post evaluation of the existing foreign development projects. Svensson (2000, 1999) also admits skepticism towards the existing foreign aid reward policies. Through empirical analysis, he fails to discover any evidence that foreign aid brings development. Easterly et al. (2004) uses more data to analyze the Burnside research (discussed in the "realist" section) and discovered that foreign assistance has no effect whatsoever on the growth of the developing world. So, the pessimists' envision that foreign assistance is provided only to spread the hegemony of the ruling world and does very little to enhance the growth of developing nations. Griffin and Enos (1970)

found a negative association between aid and growth, and attributes it to a negative relationship between aid and savings, which had also been found in other studies.

The monitoring, reform and implementation systems of foreign assistance have been criticized by the “pessimists.” Easterly (2007) discovered that to provide 3.65 USD to an impoverished person, donor nations/agencies have to spend 3521 USD on average. In his book, he also questions the true motives of donor entities and their possible liaisons with the elite agencies of an impoverished nation. He also criticizes the elite agencies of having an inefficient, yet expensive bureaucratic chain. Wehrmeyer et al. (2002) supports this claim by showing that the World Bank’s staff recruitment increased from 657 to 7,106 in only 33 years between 1960 and 1993. During the same period, the World Bank’s administrative expenses went from \$81 million in 1959-60 to \$1.5 billion in 1993-94 (in constant fy1993 dollars). The problem of expensive and intricate bureaucratic chains persists in almost every international aid organization.

Historian Basil Davidson in his book, *The Black Man’s Burden: Africa and the Curse of the Nation State* (1992) blames the legacy of imperialism and the failures of the nation-states of Africa after independence as the prime reasons for lack of progress in Africa. He points to the Economic Community for West African and South African States and writes that the Imperialist framework, along with gross negligence of the basic needs, is dismantling the economies of impoverished nations. Easterly and Levine (1997) stress the influence of ethnic fragmentation as a way to explain Africa’s below par performance. Moyo (2009), in her popular book, *Dead Aid*, criticizes aid practices in Africa and claims that foreign assistance has only crippled the region socially and

economically. Moyo (2009) claims that aid is a mere “cultural moral.” Foreign assistance consisting of grants and loans has fostered aid dependency and driven African countries into the debt trap. She proposes a variety of solutions, complete with an economic plan to reduce aid within the next ten years and to end Africa’s dependence on foreign assistance. Moyo encourages business owners and banks to increase foreign direct investment and micro finance in African countries. She asks for fewer subsidies for farmers and supports regional trade agreements. Her ideas also stress the enhancement of good governance as a way to make Africa prosperous. Kanbur echoes Moyo, claiming that aid has been futile in Africa. He asserts that the reason for this failure is aid conditionality, and without institutional alteration, a recovery might be impossible (Kanbur 2000). His main propositions include simultaneous heavy debt relief and a domestic institutional reforms program to reduce African aid dependence, which would create an accountability measure for African performance.

2.3 Conflict Theory, Collective Action and Foreign Intervention

2.3.1 Conflict Definition and Thought

“When, in the course of human events...a decent respect to the opinions of mankind requires that they should declare the causes which impel them to the separation... that all men are created equal, that they are endowed by their Creator with certain unalienable rights....That whenever any form of government becomes destructive to these ends, it is the right of the people to alter or to abolish it, and to institute new government, laying its foundation on such principles and organizing its powers in such form...while evils are sufferable, than to right themselves by abolishing the forms to which they are accustomed.”

United States Declaration of Independence

The Declaration of Independence of the United States of America alludes to rational conflict in order to restore social justice, prosperity and equality. According to

Karl Marx (1971), conflict in society is inevitable. It is related to an eternal class struggle and is a harbinger of change or even prosperity. Conflict theory in social science emphasizes a person's or group's ability to exercise influence and control over others, thereby affecting social order. It posits that individuals and groups struggle and compete to maximize their benefits, inevitably contributing to social changes, such as innovations in politics and outright revolutions. However, the modern world is not as holistic as Rawls's (1971) puzzle, where every person benevolently chooses the same consumption function. Since there will be inequality in modern society, conflict becomes the dynamic process in which structure, attitudes and behaviors are constantly changing and influencing one another (Galtung 1996). Weber's theory appears a little different, as he bases his approach on social, rather than individual action. Weber stressed the ability of individuals to affect their social relationship through conflict (Livesay 2010). In modern times, conflict theory and its applications have been influenced by Mill's work (Knapp 1994). Individuals and resources are moved by social structures and through the "unequal distribution of power and resources." Social systems (structures) are created by these conflicting preferences, interests and uneven resource accumulation (Knapp 1994, Kpuasinaski 2001). Contemporary authors concur with these thoughts and have connected conflict with inequality in society (Sears 2008, Kalyvas 2000).

Just as the definition of poverty arises from inequality and the dispossession of assets and rights, conflict projects a similar perspective related to the images of social processes and social structures within a society. This view reveals a link between poverty and conflict. The peasantry in Marxist ideology provides a fertile ground for

social revolution (Castells 1996). Conflict is a struggle between individuals or collectivities over values or claims to status, power and scarce resources wherein the aim of the conflicting parties is to assert their respective values or claims over those of others (Goodhand and Hulme 1999). In wars, we see the creation of a new type of political economy, not simply a destruction of the old one (Keen 1998). Thus, internal wars may now be better understood as the continuation of economics by other means. According to Marshall, social rights will counterbalance economic inequality. In his seminal essay, he implied that development of a “welfare state” will counterbalance economic inequality by providing basic social rights, such as education (Marshall 1950).

The value of the political economy perspectives of conflict is it highlights that violence may serve important functions and confers benefits on certain groups and individuals. In most conflicts today, it may not be as much about winning the war as maintaining one’s sphere of influence. Through a political economy approach, the production and distribution of power, wealth and destitution during violent conflict can be explored in order to discover the motives and responsibilities of those involved (Le Billon 2000). To quantify conflict and relate it with poverty, foreign aid and other development indicators, one needs to consider violent conflict with dormant and/or active economic motives. Walker Connor (1994) claims conflict arises from “the seductive lure of economic explanations.” John McGarry and Brendan O’Leary (1995) use “Mammon and Utility: Liberal Economic Reasoning” to label their perspective on the conflicts of Northern Ireland. Esman (1994) accepted the economic motif behind conflict; however, he also thought it may be difficult to identify the effect of economic

cycles on conflict. He also claims that the consequence of economic growth on conflict is ambiguous. Although he studies developed nations and an economic upturn, Esman (1994) discovered that the strong economic expansion of Canada in the 1960s aroused high expectations from the people of Quebec; thereby exacerbating conflict. He also noted that two decades of accelerated growth in Malaysia did not decrease ethnic conflict in the region. In an effort to draw inference between poverty and conflict, Cramer (2003) relates pecuniary incentives associated with conflict. Cramer works with income and Gini coefficients, along with civil war data, to study conflict and poverty discovering statistically significant results.

2.3.2 Collective Action and Civil War

The evolution of literature in collective action is strongly reflective of the historical phenomenon of past decades. A logical approach to understanding conflicts or divisions in political society would characterize most conflicts in past decades as emanating from differences in political, economic and social or cultural interests. McAdam (2001), Doug et al (2001) characterize theories of social movements and revolutions as having evolved from the structuralist to rationalist, and finally cultural. Most of the literature explaining collective action falls into one of these three categories. Collective action refers to a vast array of concepts and debates, emerging from problems of organized interest and political parties, to debates surrounding identity, citizenship and revolution. However, the one element all these phenomena have in common is organization. Mancur Olson(1965) characterized the concept of organizations by stating that, for the most part, organizations are concerned with furthering the interests of their

members. Olson associates organizations with common interests, and hence, the personal interests of its individual members. One can therefore assume that individuals participating in most forms of collective action aim to achieve some desired objective.

Olson distinguishes between market and non-market groups. He reflects on collective action in terms of public goods and rights. In market situations, the collective good is fixed in supply, while non-market groups do not pursue interests, which are limited in supply. In market situations, organizations are interested in exclusive collective goods and therefore seek a reduction in group size in order to make the market price increase. In non-market situations, inclusive goods are pursued, which is not limited in supply, and therefore, groups are encouraged to increase in size. Olson also discusses interactions in the group, more specifically, strategic interactions that refer to the concerns of members over the reaction of others to their actions. It also shows dependency within the group. Individual rational choice may lead to situations where those with more resources can carry a higher burden in the provision of a public good compared to those who are underprivileged. Impoverished individuals will attempt to benefit from the public good without contributing (free rider strategy) to its provision (Olson 1965).

Lavergne and Wood (2006) and Wood (2003) offers an opposing view relative to Olson. He argues that collective action can be dominated by emotions, rather than rational actions. In a case study by El Salvador, Wood observes that in times of labor oppression, the peasants would take high risks and protest with a low probability of success. Wood also claims that emotional rebellions can be rational but should not be

confused with rationality of the type offered by Olson. Olson's rational rebellions come from dependency, whereas Wood's come from need. From a purely economic point of view, the cause of civil war appears to be very simple. A utility maximization model can be established with rebels and a ruling party. Rebels will engage in conflict if the expected benefits outweigh the expected costs of organizing and carrying-out the rebellion (Collier et al. 1998). Collier et al. (1998) tested this theoretical hypothesis and discovered that income, ethno-linguistic fractionalization, natural resources and population size determine the duration and probability of civil wars.

Popkin (1979) opposes the moral economists' idea of defining protest as the defensive reactions of a dying class. Rather, he states that crisis is neither necessary nor sufficient for protests. Popkin defines protests as "collective actions" that are contingent on the ability of a group or class to organize and make demands. Many movements are a reflection of the peasants' growing ability to organize them and fight for rights once denied, and they are more often battles to tame markets and bureaucracies, not fights to bring back traditional systems. The transition to open villages is assumed to entail loss of protection, and therefore change in peasant mentality from collective orientation to individualistic, market orientation (Popkin 1979). Through his case studies of Vietnam, Popkin concludes that peasants want economic freedom and social mobility. He shows that government institutions receive input from their social environment and produce output that responds to that environment. Putnam (1993) shows that what people want is not as important as what is reflected in the local political culture in determining collective action. His comparison of Northern and Southern Italy reveals that old civic

traditions prevail. Bessinger (2002) argues that military coercion could not have repressed the nationalist movements that led to the collapse of the Soviet Union.

Conflicts and violence within a group are often more related to local issues rather than a master cleavage that drives civil war at the national level. In the collective action literature, violence is often portrayed as a resource for mobilization at the national level. The transactions between supra-local and local agents are interesting. As the former supply the latter with external muscle, this allows them to win local advantage in exchange for the supra-local actors recruiting and motivating supporters for their cause at the local level. Violence is a selective benefit that produces collective action and support on the ground. Civil war privatizes politics. It transforms local and personal grievances into lethal violence; once it occurs, violence becomes endowed with a political meaning that may quickly be naturalized into new and enduring identities. Trivial sources of the new identities are lost in the new politics of the fog of war (Kalyvas 2000, Regan 2002).

McAdam, Doug et al (2001) identify three main critiques within the existing body of collective action literature. First, scholars studying different kinds of contentious politics—social movements, industrial politics, wars, revolutions, riots, etc.—have modeled and examined their specific area of focus, in general distancing themselves from identifying commonalities among all types of contentious politics. Second, the literature is dominated by Western reform movements. Scholars focusing on movements outside this realm, such as China, Latin America, the Middle East and Western Europe, have been unable to establish an exchange of ideas and dialogue with the scholars who

draw upon the experience of Western Europe. The end product is an assumption of the universality of Western models, as opposed to a bridging of differences and drawing on commonalities and differences. Finally, social movement scholars who study the foundations, social bases and overall dynamics of these movements, overlook outcomes. Conversely, revolution analysts focus on origins and outcomes and ignore organization, dynamics and agency. As a result, the two distinct groups focus on different trends and ask different questions, resulting in little space to draw commonalities. It is important in to distinguish regional and communal attributes and affects when analyzing collective action.

2.3.3 Democracy, Nationalism and Conflict

A society with the propensity for ethnic conflict is a deeply divided one. Donald Horowitz defines ethnicity as “based on a myth of collective ancestry, which usually carries with it traits believed to be innate,” giving rise to a group affinity (Horowitz, p. 55, 1985). In this regard, ethnic differences are already deeply embedded in such societies. Nationalism is popularly viewed as a cause of ethnic conflict. Ironically, it is nationalism (i.e., we the people) that gave rise to movements for sovereignty in many Western nations and, hence, independence/liberal democracy. However, in much of the literature, nationalism is now viewed as a threat to democracy. It is clear that nationalism can give rise to both democracy and ethnic conflict on two ends of the spectrum, and therefore an answer is not particularly simple.

Ted Gurr (1994) asserted that communal conflict has occurred in at least twenty new states that are experimenting with democratic institutions as a direct consequence of

the fact that institutional change has opened up opportunities by which communal groups can more openly pursue their objectives. Support for Gurr is evident among contemporary political scientists, as the general consensus is democracy, nationalism and ethnic conflicts are inextricably intertwined (Diamond et al. 1994). It therefore appears that there may be a causal relationship between democracy and ethnic conflict.

Horowitz (1994), through his studies of ethnically-divided societies in Asia, Africa and the Caribbean (new post WWII states), critiques Marxist class-specific explanations for ethnic conflict. He argues that it is not just a strategic calculation of cost-benefit, but there is a deeper cultural and psychological element. He argues against middleman theories that locate the source of ethnic conflict in those who control trade and rather claims that mutually complementary economic roles can in fact be beneficial. Working class job competition is also not a factor. Horowitz also argues against Richard Sklar's idea that tribalism becomes a mask for class privilege. Horowitz argues that it is not class or economic elitism that underlies ethnicity, but rather real cultural and symbolic interests. He also uses psychological interpretations—*anxiety reaction*: anxiety produces extreme reactions to modest threats, and prejudice allows a discharge of hostility, thus reducing anxiety. This may explain incidents that are only otherwise explained through theories of elite control. It also explains a group's desire to be in charge of policy, to be at one with their surroundings, to belong in a territory. Legitimacy gives ethnic claims to exclusive domination a moral basis.

A case study from Nigeria concludes that the transfer of political power to the state level diminishes the focus on the political center (Horowitz, 1994). In Nigeria's

second republic (1979-83), intra- or sub-ethnic conflict was encouraged at the state level. With the creation of 19 centers of power and resources, ethnic boundaries shifted onward and sub-ethnic identities became activated, mostly within the three largest groups. Each of these groups was split between two or more states and, therefore, state interests created new lines of cleavage and cut across ethnicity. Federalism created inter-ethnic cooperation; built coalitions of states and ethnic groups, and fostered trans-ethnic political parties and alliances. By the 1983 elections, this had transformed Nigerian politics.

Fukuyama, Nodia and Avineri (Diamond and Plattner eds. 1994) present a resurgent and ongoing process created and sustained by the existence of liberal democracy in a way that is incompatible with more stable identity formations elsewhere. Democracy in Africa may have brought freedom and rights on behalf of the impoverished but it also created mass corruption, instability and lawlessness in many countries (Zakaria, 2003). Chua (2002) claims that democracy can translate into a market dominant minority. She further asserts that democracy may also create instability, upheaval and ethnic conflagration. It appears the consensus of this modern school of thought is that democracy can give rise to ethnic conflict when political leaders seek opportunities to manipulate the conflict for popular support.

2.3.4 Theory and the Economics of Foreign Aid in Conflict

Provided that aid agencies and donor nations agree on working “in” conflict-prone countries to develop their socio-economic stability, the question still remains, what would be the ideal policies? In areas of extreme conflict, more resources are used

for military intervention than for foreign aid. The difference between military intervention money versus foreign development money in developing conflict zones needs to be explored. Azam et al. (2010) designed a theoretical model that claims an increase in foreign aid would reduce the supply of terrorist attacks from developing nations. U.S. military interventions, however, have caused the number of terrorist attacks to increase. The results of the empirical estimation suggest that developed nations should allocate more funds for foreign assistance than military intervention (Azam and Thelen 2010). The authors assert that more aid should be specifically dedicated towards education. In previous research, Azam and Thelen (2003) argued that terrorism can be attributed to lack of education, because illiterate young men can be easily lured by terrorist groups into carrying out acts of violence. If the education system of a nation is good, then the probability of violence is reduced. Therefore Azam et al. (2003) claim that aid that increases literacy rates and levels or years of education (school attended) would reduce terrorism.

Economists have found empirical evidence that economic factors influence civil wars (Murdoch and Sandler 2001, Collier 2001, Collier and Hoeffler, 2001). Civil war and conflict are very dangerous for continents such as Africa, because of its spillover effects. Civil wars create spillover effects, enhancing the risk of conflict in the same region. Sources of finance have also been deemed to be as important in a civil war (Collier 1999).

2.4 Poverty

A basic definition of poverty has been provided by Amartya Sen (1999) as the deprivation of basic capabilities. He asserted that the measures of human poverty should incorporate the dimensions of health and longevity, cognitive functioning, physical security and material well-being. From a quantitative research perspective, the World Bank's definition of poverty as being \$1 a day and \$2 a day has been the most popular definition (World Bank 2002). This measurement is controversial, as a dollar a day goes much farther in rural India than it does in New York City. However, many contemporary researchers (Baulch and Hoddinott 2000, Pritchett et al. 2000, Chen and Ravallion 2004, Deaton 2000, Jalan and Ravallion, 2000, Ravallian 2003) have used this measure and have found significant and viable results both for industrial and third-world countries. For example, Baulch and Hoddinott reviewed the literature on poverty dynamics in developing countries using Bank measures to further explore this issue (Baulch and Hoddinott 2000). The studies used data from panel studies that by then had been conducted in several countries. The patterns are very similar to those found in studies of poverty dynamics in the US and other industrial countries.

Nevertheless, Ravallion (2003) accepted that the dollar-a-day poverty measure has its "devil in the details." Hence, to understand and analyze poverty-related measures and research, one needs to identify the philosophical and psychological aspects of poverty and the latent variables related to this issue. Although the popular view is to discern poverty applications (Ravallion 2003) through their absolute and relative measures, here, poverty is distinguished by six philosophical ideas discussed below.

Livelihoods approach: Poverty is viewed from a broader perspective, including the specific examination of livelihoods. The divisions of household assets into forms of human, social, natural, financial and physical capital may provide valuable insight into social oppression and conflict (Chambers 1995). This particular approach mainly considers living, however, it also takes into account social oppression and conflict.

Exclusion and rights: The huge amount of literature on war and famine emphasizes the importance of political marginality and the systematic denial of human rights. The outright exclusion of any human rights can be considered a denial of rights or incomplete citizenship (Bhalla and Lapeyre 1997). Galtung (1990), in a similar vein, refers to “structural violence,” which manifests itself in structural inequity and the unequal distribution of power. The UNDP’s political freedom index, which incorporates personal security, rule of law, freedom of expression, political participation and equality of opportunity—provides a proxy indicator for the political dimension of exclusion. In the process it also highlights the link between politics and poverty.

Human security: UNDP’s (2005) concept of human security and the political freedom index emphasizes personal security as a focus of the notion of wellbeing. Recent case studies also highlight the fact that poor people place a very high value on personal safety. Although, one of the basic needs of a citizen of an independent society is entitlement to property and security, often times, the citizens of third-world countries do not enjoy any of them.

Poor people’s perceptions: Chambers (1995) stresses the importance of listening to poor people’s perspectives. In unstable contexts, people’s perceptions of well-being

and security can be critical in determining whether conflict becomes violent or remains latent. Although there is limited research in this area, in terms of triggers to violence, it appears that absolute measures of poverty are less significant than poor people's expectations and a sense of grievance. The feeling of "need" arises from the idea of being deprived and being unequal. Hence, the perception of inequality is one of the cornerstones of poverty.

Risks and vulnerability: Household vulnerability is defined as the capacity to manage shocks in poor households that have low vulnerability to risk. In most developing economies, the impoverished are exposed to the vulnerability of life and unsafe situations both economically and socially. It is often the lack of viable economic alternatives and vulnerability towards risk that drives poor people to engage in violence (Keen 1998).

2.4.1 Relationship Between Conflict and Poverty

There is substantial literature, both theoretical and empirical, explaining the complex relationship between poverty and conflict. Social scientists, mostly economists, have attributed frustration, greed and grievances as being the causes of conflict. The frustration aggression theory and the relative deprivation theory describe why and how individuals become aggressive when there are obstacles, both perceived and real, to their success in life (Van de Goor et al. 1996). The frustration of the impoverished instigates the aggressive behavior that always presupposes the existence of frustration and, contrawise, the existence of frustration always leads to some form of aggression (Dollard 1939). The relative deprivation theory suggests that sometimes people perceive

themselves as being deprived relative to others. This perception creates a hostile atmosphere. Social psychologists divide the *relative deprivation theory* into two facets: fraternal deprivation and egoistic deprivation. Fraternal deprivation is the feeling that one's group is deprived relative to another, while egoistic deprivation refers to the situation when one individual is deprived relative to another (Draman 2003). Fraternal deprivation may be linked with prejudice, social protest, social status and nationalism.

Conflict ensues from disagreement, inequality, failing markets and social status quo. Draman (2003, 1993) and Copson (1991) have discovered that conflict is highly correlated with poverty in Africa. Goodhand (2000) discovered, in his case study of Nepal, that poverty is both the cause and consequence of conflict. Moore (2000) deduces bad governance creates inequality, which translates into grievances and generates exclusion. In Sri Lanka, for example, Tamil farmers suffered from reduced government spending and reacted with violence. However, the government also claimed that since they were engaged in violence, they were compelled to slash their welfare and aid budgets. In Uzbekistan, social tensions increased due to bad governance in land reform rules, which in the essence of increased poverty. Financial constraints and rapid population increases can cause the deterioration of education standards and reduced access to technology. These problems reduce life expectancy and literacy rates, increased birth and mortality rates and higher unemployment rates. In Sierra Leone, higher unemployment rates and decreased opportunities for education and access to technology created a rebel youth group that engaged in violence to attain a short cut to wealth and status (Keen 1998). Goodhand (2000) supports this idea and claims many

modern day conflicts emanate from and are fought in border regions that have historically suffered from marginality, limited voice and hard core poverty. Conflicts in Nepal and Chiapas, Mexico, are clearly linked to differential development and patterns of exclusion (Goodhand 2000). Stewart et al. (1997) do not completely agree that poverty and grievance are the cause of conflict; rather, they assert that we may have a two-way causality structure between poverty and conflict. Moore and Collier do not reject the idea that conflict and violence are caused by poverty, but they introduce “greed” and “grievance” as variables in the theoretical notion.

Many researchers agree that extreme horizontal inequalities bring about grievances, which enable leaders to mobilize followers to cause violence (Stewart 2000). However, Collier (2001) somewhat disagrees and claims that, behind the large disclosure of grievances is hidden the “silent voice” of greed. Keen (1998) argues that conflict is irrational and is manipulated by money and power hungry political entities. Moore (2000) also agrees with the Collier hypothesis; they both seem to claim that war is costly and is financed by sections of society that enrage and instigate a society’s impoverished as a way to gain the upper hand among the ruling class.

Stewart et al. (2000) portray conflict as stymieing development and macroeconomic growth. During conflict, a society moves away from a free market system (Chingono 2000), which increases government intervention. And since most conflict-ridden economies do not have a democratic, corruption-free government, this system initiates severe nepotism and deprivation. Le Billion (2000) claimed a war economy shapes social processes where civilian expenditures decrease severely. And, as

is evident in Sri Lanka, Myanmar, Nepal and Sudan, the government effectively reduced food and necessary supplies to certain sections of the society. In Liberia, “he who had the weapon ate first” (Kapusckinski 2001). Globally, conflict decreased GDP per capita and food production, and made an economy dependent on imports and aid (Stewart 2000). Moser (2000) directly relates decline of the state and democratic political processes with increased influence of military actors, decline in the rule of law and the targeting of politically excluded groups with conflict. Conflict also causes a breakdown of institutions, customary rights and rules of usage; all predatory behavior leading to resource depletion and environmental dilapidation and a lack of management and investment in natural resources. Deaths; disablement and displacement of populations; decline in capacity of the state to provide services, such as health and education, are all attributed to conflict in a society. Violence against women, the reemergence of slavery, declining literacy, life expectancy, increased infant mortality rates and higher levels of stunting have all been linked directly or indirectly to conflict in the developing world (Luckman et al. 2001). The long-term effects of conflict produce a poorly educated and skilled workforce with low productivity and a future generation that only knows one cure for disagreement, namely violence.

2.5 Discussion and Recent Revelations

2.5.1 Foreign Assistance

In reference to the reviewed literature, it can be concluded that foreign assistance is inefficient and needs a major reconsideration and revision of policies. The optimists approach is certainly commendable. However, allocating more money without accepting inconsistencies and failures may result in draconian consequences. Their popular notion of working around conflict and providing assistance only to the relatively progressive countries will no doubt increase the probabilities of project success. This approach will also deprive the conflict- and corruption-prone third-world countries, resulting in economies, such as Afghanistan and Sudan. It becomes extremely difficult, if not impossible, to resurrect a country that has reached the status of a “failed” state. The optimist’s goals, such as MDG’s, may be insightful; however, these goals should be tailored and managed for particular regions. A more flexible zone-wise approach may be suggested. The reformation of development agencies has been a reoccurring phenomenon in recent times. Unfortunately, reforming is expensive, and even after reformations, the pessimists have demonstrated ineptness in the functioning of these agencies.

Organizations such as MCC have been a welcome addition to the foreign development arena. New organization implies novel policies and less bureaucratic intricacies. However, MCC’s policy to bypass countries with corruption, conflict and instability, is perturbing. The pessimists who provide a bold depiction of the futilities of aid and assistance programs are informative. Their suggestion of “no plan for

development,” fewer resources for foreign development and a complete overhaul of existing agencies, appears impractical. Moyo’s (2009) recommendations of less aid for African countries and more opportunities for trade and business may be impractical, as well. African countries do not have the economic infrastructure and technology yet to be on equal terms of trade with Western nations. Without equal terms of trade, it would not be possible for third world countries to form effective business relationships with developed economies. Easterly’s portrayal of excessive paternalism in foreign development strategies demands more attention and suggests that greater responsibility be given to aid recipients. However, it would seem highly improbable that providing recipients with all the decision-making power over development aid would be successful approach, either. Especially, in politically volatile third world conflict-prone economies, a total absence of supervision and project management assistance from donors would likely introduce more abysmal results. Assisting “searchers,” such as Yunus, directly, may also have its own repercussions and could quite possibly hinder a donor’s diplomatic relationship with recipient governments. Donors can provide direct supervision and provide moral support to the “noble minds” referred to by Easterly as searchers.

The realists appear to have a more negotiating perspective about foreign development. Collier’s (2000) proposal of ensuring proper disbursement of aid, reform of trade policy and use of civil military partnerships, are pragmatic. Since defense spending is highest among foreign development projects, civil military partnerships may provide successful results. One of the main concerns of scholars is whether the

assistance provided is trickling down to the neediest or the most neglected tribes. Sometimes, domestic governments, policy makers or development specialists tend to be biased against certain factions of the population. For example, in countries such as Sudan and Iraq, underrepresented tribes are being neglected by domestic aid workers. Non-partisan hands-on involvement with donor nations will be beneficial in this regard. Organizational reforms are also needed in the recipient nations as well. As Kanbur (2000) proposes, recipient countries should undergo efficiency makeovers as well as debt release programs.

From a foreign assistance perspective, scientists and policy makers deal with three facets of bureaucratic stages in an international development project.⁵⁶ These are political bureaucracy, scientific bureaucracy and administrative bureaucracy. Political bureaucracy generally consists of elected and selected officials consisting of branches of government. It may appear counter-intuitive to label elected officials as bureaucrats, but essentially, politicians and bureaucrats are equally liable for executing and planning public policy, and both seek to maximize their own power and budget. The cardinal goal of a politician is to increase the probability of his/her being re-elected. Politicians intend to maximize their own discretionary budget to get re-elected and to maximize their own power. They may also sometimes intend to enact or implement policies that would provide them with a praiseworthy notation in history, even if it tarnishes their current image. In some cases, important bureaucratic positions are assigned through the

⁵This part of the document is based, in part, on informal remarks by Norman Borlaug and research by the author.

⁶ Kibriya, S., Borlaug N. and Price E. Bureaucracy and Foreign Development. 2009.

advocacy of prominent politicians. Administrative bureaucracy can be the most fatal in foreign development projects. A stagnant bureaucratic procedure can hinder the progress of development. Scientific bureaucracies refer to the academics and the intellectuals of a developing nation. Often times, they do not welcome new methods and technologies.

2.5.2 Poverty and Conflict

The literature review suggests that there may be a relationship between conflict and poverty. Some recent literature (Krueger 2003, Collier and Hoeffler 2000, Goodhand 2001, Piazza 2004) has suggested that poverty may not be the root cause of violence. Synthesizing from the diverse definitions of poverty in the literature discussed, impoverished citizens are those deprived of property entitlement, basic food and housing, education, security and voice in society. It would be hard for citizens who are so neglected and deprived to amass resources to revolt against the status quo. Hence, violent activities may also engage greed, financial and intellectual resources of the elites. Impoverished people may actually be engaged in violence, but the catalyst for those acts of terror may come from other sources. Lack of knowledge (education), finance, shelter and food only makes manipulation of the impoverished easier. At this juncture, it should be noted that not all collective action in conflict should be categorized as acts of terror. Collective action or revolution is an essential facet of a nation's development process and social mobility. So, from a philosophical standpoint, it is important to distinguish organized violence from collective action for rights and social mobilization. Poverty should be considered in a relative sense as well. As for a quantitative measure of

poverty, although it entails social, philosophical, psychological and economical aspects, a constant currency or goods value may be the best method of quantifying it.

2.5.3 Assistance, Conflict and Development

The unequivocal goal of foreign development is to assist the most impoverished and bring peace and stability to developing countries. The assessments of this chapter demonstrate that development policies have yet to achieve a formula to do both. Since, the spectrum of poverty and conflict is very broad, specific areas ought to be targeted with different philosophies. It is imperative to understand market mechanisms, individual rationality constraints and incentives, as well as to define the utilities and objectives of both the donor and recipients to design efficient foreign development policies. Identifying root causes and causal chains are also important in order to treat poverty and conflict. The MDG's approach is novel in that regard. Working "in" conflict zones is necessary. Violence is an impediment towards development and cannot be mitigated by patience.

CHAPTER III

A REVEIW OF THE DATA

3.1 Introduction

The basis of sound empirical research depends on the underlying data. A comprehensive description of the data and its sources are provided in this chapter. This research utilizes secondary data on economic indicators, social indexes, international conflicts, inter-country violent events, commodity prices and primary data from field notes. Key analyses are based upon 60 years of quantitative data comprising 120,402 data points. Qualitative data were taken in Iraq and Southern Sudan. In this chapter, the data have been divided into several categories to illuminate their attributes, before calibration.

3.2 Official Development Assistance

Foreign aid for developing countries given by the developed world came into prominence after the Second World War. President Harry Truman's Point Four Program was the first time the leader of a nation openly advocated financial assistance for the developing world. Although the Truman program came into effect in the 1950s, the United Nations and other world organizations started providing official assistance and attention to developing countries beginning in the 1960s. The Solow (1957) and Rostow (1960) models of economic growth essentially recommended aid for the purpose of promoting economic growth, albeit on an interim basis. Foreign assistance as it is known today came into prominence in the 1960s and traces back to the time when the US Agency for International Development was established in 1961, which is the same year

that the Organization for Economic Co-operation and Development (OECD) was established. Foreign aid and development intervention can be categorized into two parts: military assistance and official nonmilitary development assistance. Following the September 11, 2001 attacks on the New York World Trade Center and other US sites, \$751 billion has been spent in Iraq alone by the US Department of Defense. The funds were spent on war, medical costs, construction and the socio-economic development of Iraq. Data on spending by the US Department of Defense is problematic, because it is very difficult to differentiate between funds that are spent on socio-economic development and other uses. Furthermore, defense-spending data for all countries is not available for research purposes. For these reasons, civilian aid and assistance data is utilized for academic research and the evaluation of policies.

Development assistance data was acquired from the OECD database. According to OECD, “Official development assistance is defined as those flows to developing countries and multilateral institutions provided by official agencies, including state and local governments, or by their executive agencies, each transaction of which meets the following test, 1) it is administered with the promotion of the economic development and welfare of developing countries as its main objective and 2) it is concessional in character and conveys a grant element of at least 25 percent” (OECD database 2010). The OECD data is supplemented by the World Bank dataset on foreign assistance. Both datasets comprise foreign aid data from 1960-2008. To obtain a better understanding of the foreign aid market, it was useful to divide the data in different categories and examine important characteristics of foreign assistance. Population could be a factor—

the absolute amount of a nation's receipt of foreign aid; therefore, a per capita foreign assistance (the amount of foreign assistance given, divided by the population of recipient countries) was computed in order to account for this possible bias.

3.2.1 Donor Assistance

The discussion about the data is initiated from the perspective of sources of foreign assistance. Though some financial assistance is disbursed by bilateral and multilateral agencies and banks, most pecuniary assistance is derived from 23 developed countries and is mostly distributed to about 80 developing countries. Although only designed for underprivileged European countries, planning of the allocation of resources for foreign development programs in developing nations commenced only after the Truman Point Four Program. The trends depicted in Figure 3.1 show that per capita financial aid increased from near zero to nearly \$20 between 1960 and 2008. The trend

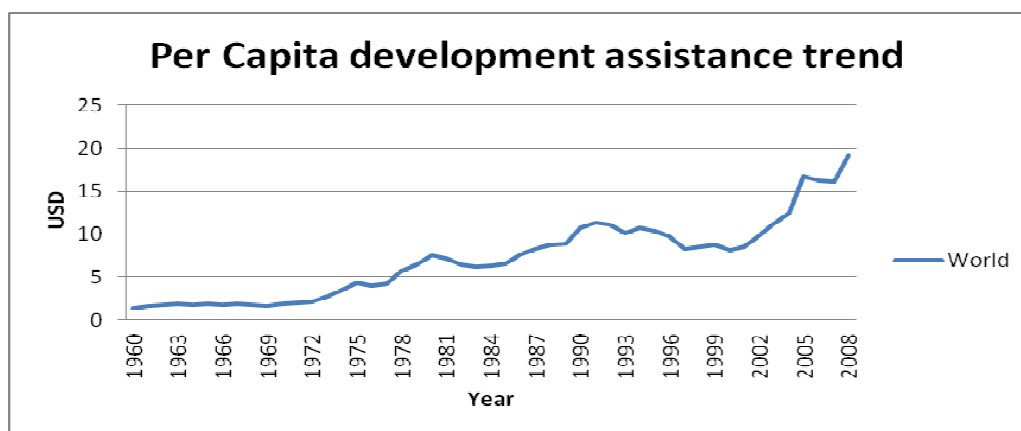


Figure 3.1: Time trend analysis of per capita aid disbursed for the whole world.
Source: World Bank.

Table 3.1: Total Aggregate Aid Provided by All the Donor Nations From 1960 to 2007. Source: World Bank, OECD.

	Country	Total Aid USD Billion
1	United States	454148
2	Japan	280277
3	France	216723
4	Germany	211650
5	United Kingdom	150082
6	Netherlands	99900
7	Italy	77138
8	Canada	76676
9	Sweden	66651
10	Spain	49623
11	Norway	47250
12	Denmark	44498
13	Australia	41174
14	Belgium	35132
15	Switzerland	29355
16	Austria	17251
17	Finland	16114
18	Ireland	9164
19	Portugal	7328
20	Korea	6565
21	Greece	4735
22	New Zealand	4619
23	Luxembourg	3372

has generally been upward from the 1960s to the early 1980s. During the '80s through the mid-to-late '90s, financial assistance from the developed world decreased.

This reduction can be partly attributed to the “Cold War” and disagreements in philosophy among the more affluent nations. Due to a lack of attention towards the developing countries, conflict and poverty significantly rose in and around the late 1990s, which was followed by an increase in foreign assistance. From 1999 to 2008,

foreign assistance per capita has increased approximately 10 USD per capita. This two-fold increase reflects the Western philosophy and urgency of international development. The available aid data is scaled for current USD and consists of 23 donor countries through 38 years.

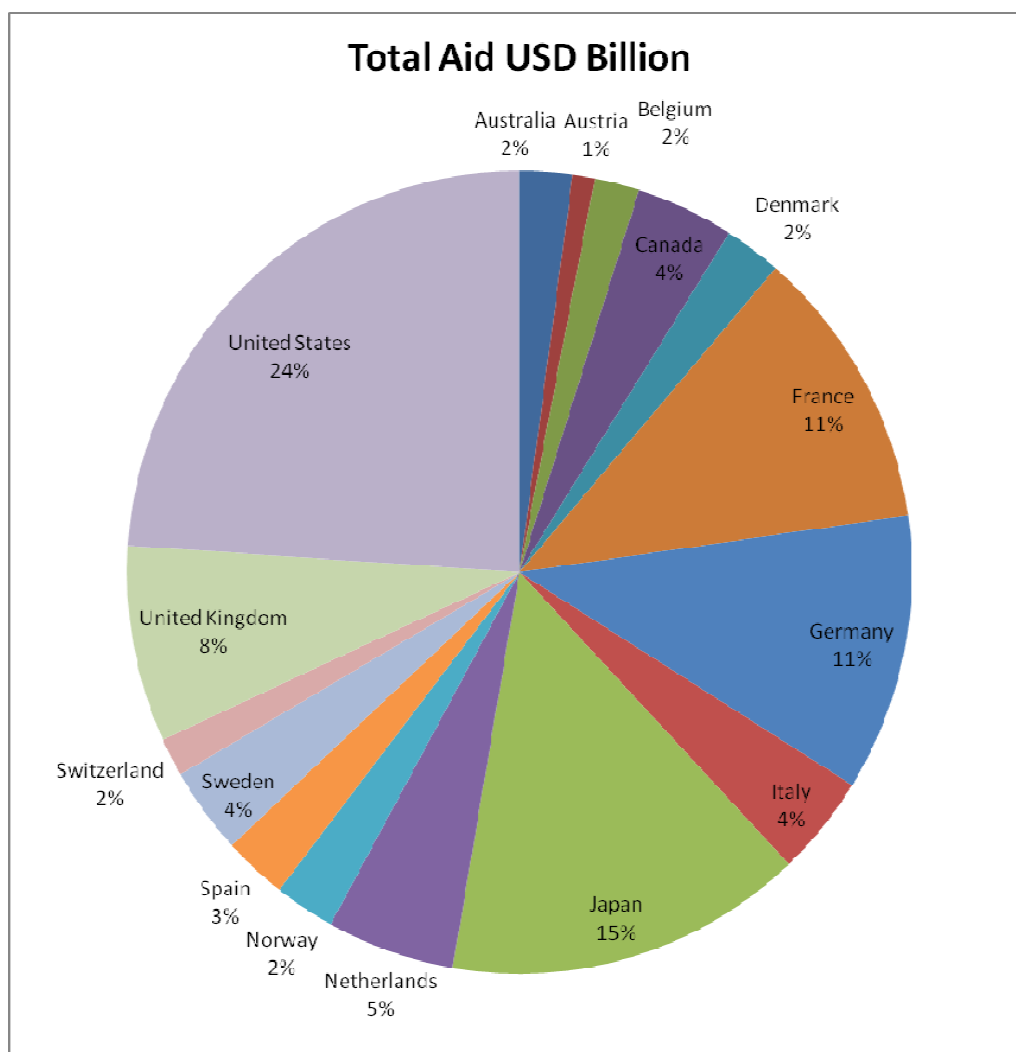


Figure 3.2: Percentage of aid provided by the major developed nations from 1960 to 2008. Source: OECD.

Table 3.1 shows the total aid provided by all donor nations between 1960 and 2010. The United States provided the highest amount of aid among all countries, with an average of \$12 billion per year. Apart from US, Canada, Korea and Japan, all the other donor countries were from Europe. Interestingly, Korea, until recently, was a major aid recipient country, as well. Figure 3.2 illustrates the total share of aid provided by the different countries. Since Luxemburg, Greece, Korea and New Zealand did not even provide .5% of the total aid, they have been excluded from the chart. The United States leads the group of foreign assistance donors by providing 24% of total aid. Japan is second with 15% of the total aid. France, Germany, Britain, Italy, Canada and Netherlands also provide significant amounts of foreign aid each year.

3.2.2 Division of States and Areas

The Economic and Social Council of the United Nations classifies the socio-economic stability of a nation through the following three criteria (United Nations Report 2007).

- **Income:** Based on average Gross National Income (GNI) per capita estimated for three consecutive years. For example, according to the United Nations, the least developed countries have a per capita income lower than \$700 US.
- **Human resource weakness:** The Human Assets Index (HAI) is based on indices of: (I) nutrition; (II) health; (III) education and (IV) adult literacy.
- **Economic vulnerability:** Economic vulnerability is based on indices of the instability of agricultural production, the dearth of the export of goods and

services, the economic importance of non-traditional activities, merchandise export concentration and the handicap of a small economy.

Judging by these criteria, the UN classifies four groups of countries that have not graduated to become “developed” countries: they are (United Nations 2007):

- Least developed countries
- Low income countries
- Middle low-income countries
- Upper middle-income countries

Along with these countries, foreign assistance is also provided to some high income countries, such as: Brunei, Bahrain, and even the United Arab Emirates. For time-trend representations, the countries were distinguished in five categories (United Nations 2007). They are:

- High income: Per capita income of \$12,196 or higher.
- Low Income: Per capita income of \$996 or less.
- Lower Middle Income: Per capita income of \$996 to \$2500.
- Middle Income: Per capita income of \$2500 to \$3946.
- Upper Middle Income: Per capita income of \$3946 to \$12,195.

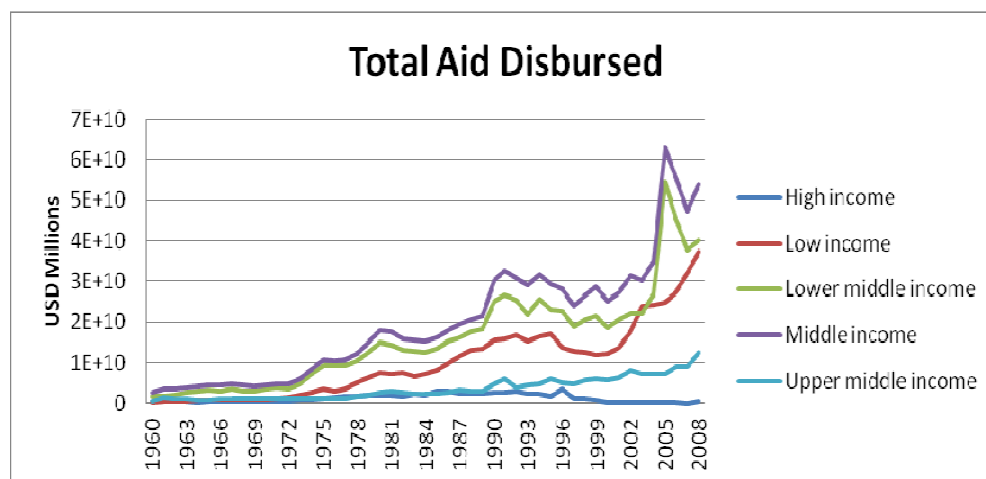


Figure 3.3: Time trend of total foreign aid disbursed in various groups of countries.
Source: World Bank, OECD.

Figure 3.3 shows that historically middle income countries have obtained the highest amount of total foreign assistance. Over the course of the last thirty years, middle-income countries consisted of Brazil, India, China, Korea, Indonesia and the Philippines. These economies attracted huge amounts of foreign assistance as underdeveloped countries. Part of the reason for the higher foreign assistance may be that the donor community intended these countries to improve and attain a level of equal “terms of trade” with the developed world. The rest of the figure shows that high and upper middle-income countries obtained the lowest amount of aid. The second and third places were occupied by the lower middle-income and low-income countries, respectively. This recent trend illustrates that aid for low-income countries has been increasing and aid for lower middle-income countries has been decreasing.

To examine the situation further, the aid trends of middle income countries and several extreme-conflict prone poor countries were compared. Twelve nations that are consistently plagued by chronic poverty, international conflict and violence were

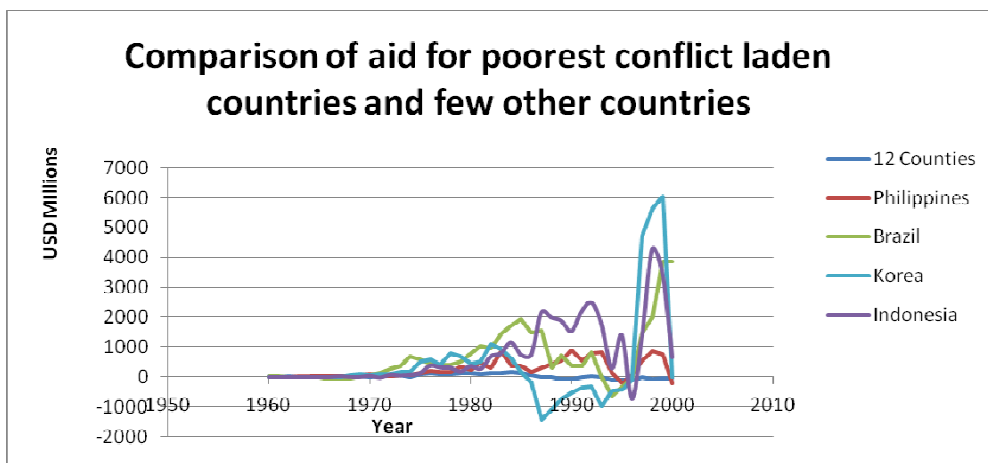


Figure 3.4: An aid comparison of the poorest conflict-prone nations with middle income nations from 1960 to 2000. Source: World Bank, OECD.

identified for this comparison. These nations are: Burundi, Ethiopia, Afghanistan, Eritrea, Haiti, Kenya, Sierra Leon, Liberia, Malawi, Rwanda, Myanmar and the Central African Republic.

Figure 3.4 shows that from 1965 to 2000, countries such as Korea, Indonesia, Brazil and the Philippines have historically received a much higher level of aid than the total aid obtained by all of these conflict-prone nations. Since 2000, all twelve states have been categorized as “failed states” by political scientists and journalists. However, since these middle-income progressive nations, such as India, China, Brazil, Philippines,

Korea and Indonesia have relatively higher population levels, the per capita income in these countries still remained low. Figure 3.5 depicts the per capita aid trends in different clusters of countries. It has been discovered that low-income countries have consistently obtained a higher per capita level of foreign aid than all other countries. The per capita aid allocated to developing nations is about \$46, which is \$23 more than the second place low-middle income countries. However, there was a period of 10 years from the late '80s when foreign assistance for lower-income nations did not rise. It also revealed that high-income countries obtained the lowest per capita income, followed by the upper-middle income and middle-income countries. This trend shows that only high-income countries had their per capita aid decreased in recent years.

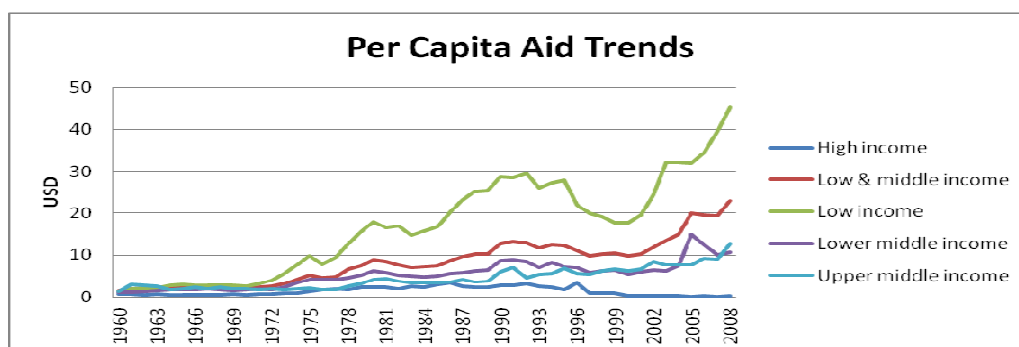


Figure 3.5: Per capita aid trends of various clusters of countries from 1960 to 2008.
Source: OECD, World Bank.

3.2.3 Per Capita Aid by Country

Per capita aid disbursed to a particular country would provide general insight of donor perceptions and intentions. The per capita aid for all aid-receiving countries has been provided in the appendix. An abridged version of the table is provided as Table 3.2. To make the discussion more relevant and consistent, countries that have a total

population less than 2 million were omitted. For example, Northern Mariana Islands has obtained the highest per capita aid since 1960, with an average per year per capita aid of over \$3,200. This benevolence of the donors can be attributed to the very small

Table: 3.2 Top Per Capita Aid Receiving Economies (Population of at Least 2 Million) From 1960 to 2008. Source: OECD, World Bank.

Country Name	Per Capita USD from 1960
West Bank and Gaza	297
Israel	179
Bosnia and Herzegovina	166
Montenegro	164
Jordan	161
Tonga	155
Djibouti	148
Bahrain	125
Serbia	112
Suriname	111
Albania	82
Namibia	70
Nicaragua	66
Armenia	65
Papua New Guinea	65
Gabon	59
Malta	58
Georgia	57
Lebanon	50
Zambia	48
Eritrea	48
Congo, Rep.	47
Gambia, The	47
Mongolia	46

Table 3.3: Top Per Capita Aid Receiving Economies (Population of at Least 2 Million) From 1999 to 2008. Source: OECD, World Bank.

Country	Average Per Capita USD Aid 1999-2008.
Liberia	323
Serbia	313
Oman	301
Bosnia and Herzegovina	241
Chile	204
Israel	200
Slovenia	198
Uruguay	192
Azerbaijan	164
Albania	164
Kazakhstan	159
Iraq	159
Macedonia, FYR	155
Georgia	140
Jordan	135
El Salvador	134
Mongolia	133
South Africa	133
Nicaragua	133
Turkey	124
Lebanon	116
Malaysia	115
Congo, Rep.	115
Armenia	111
Mexico	110
Afghanistan	94
Mauritania	89
Brazil	85
Honduras	80
Venezuela, R.B. de	76

population of the island. The average per capita aid analysis suggests that Israel, Palestine and the West Bank Gaza strip have obtained the highest amount from 1960-2008. In general, European conflict-prone impoverished nations acquired a higher amount of per capita foreign aid, indicating that the donor countries are more concerned with the economies of their close neighbors. Affluent Middle Eastern nations, such as Lebanon and Bahrain, also made the list of top aid-receiving economies. There is only one nation from Sub-Saharan Africa in the top 20 per capita foreign aid recipients.

Table 3.3 shows countries (of over 2 million people) with the highest per capita foreign assistance from 1999 to 2008. Surprisingly, Iraq and Afghanistan do not head this list. This list is led by Western allies and neighbors, such as Chile, Serbia, Bosnia, Israel, Slovenia, Uruguay, Albania and Azerbaijan. It appears that the two most compelling factors for obtaining higher per capita foreign assistance are location and proneness towards violent conflict. Countries with chief reasons for this strategy may be international trade and domestic security. Developing the neighboring regions would imply less migration and threat of violence for a donor country. Furthermore, it is easier for a donor nation to become involved in trade treaties with prospering neighbors with good economic conditions. A peaceful country also provides a conducive environment for investment.

3.2.4 Comparison Between Fragile and Failed States

According to the United Nations, the least developed nations exhibit the lowest indicators of socioeconomic development with the lowest Human Development Index ratings (United Nations Database 2010). The countries in the bottom tier of this group

are all conflict prone, impoverished and politically unstable. Each of the 47 countries listed as least developed countries (LDCs) have been identified as “fragile states” by social scientists (OECD 2007). Without rapid and well-designed development strategies, these nations turn into “failed states.” According to Max Weber (Weber 1918), a successful state would exercise a monopoly on the legitimate use of physical force within its borders. If the monopoly is hindered through the dominant presence of warlords, paramilitary groups, terrorism or other mediums, the very existence of the state becomes uncertain and the state becomes a *failed state*. It appears that most failed states fail to perform the basic functions of states (Zartman 1995) because of violent conflict. The determination and stigma of a “failed state” can be controversial, because of the vague definition and geopolitical consequences (Stewart 2007). However, “failed states,” in general, have four distinct characteristics: (a) prolonged status as fragile states; (b) sustained violence and conflict; (c) uneven economic development and severe economic decline; (d) intervention of other states and (e) violation of human rights.

The initial group of 47 Less Developed Countries (LDCs) measured by United Nations is divided into two categories. The 12 countries (from Figure 3.4) that are the poorest and have had extreme conflict at recent times were grouped as “poorest conflict-laden.” The central governments of these nations lost the “monopoly of control” of these states due to extreme violence, which, of course, constituted them as “failed states” (Ignatieff 2002). The 12 countries identified were Burundi, Ethiopia, Afghanistan, Eritrea, Haiti, Kenya, Sierra Leon, Liberia, Malawi, Rwanda, Myanmar and Central African Republic.

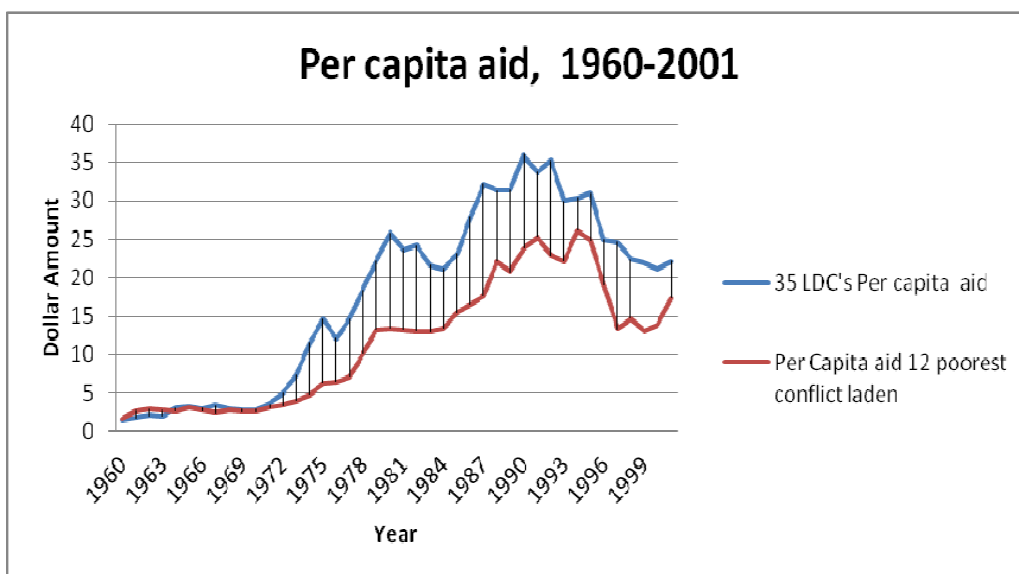


Figure 3.6: Comparison of per capita aid disbursement for 35 LDCs and other twelve LDCs that are poorer and more conflict prone. Source: World Bank, OECD.

The other 35 states are poor and conflict-laden as well, but their socio-economic condition and conflict scenario is better than the first group. Figure 3.6 compares the per capita aid received by these two groups between 1960-2001. The figure demonstrates that the most impoverished conflict-prone countries received significantly less per capita assistance than the other LDCs. The marginal per capita benefit of \$7 for countries with a per capita income of \$700 is economically, statistically and socially significant. It is suggested that the absence of proper conflict forecasting and foreign policies pushed these 12 conflict-prone poor countries to the brink of becoming failed states.

After 2001, the unrest turned into radical conflict and violence in these 12 countries. Conflict infiltrated through national and international borders, and they attracted more attention from the donor community. Figure 3.7 shows that the per capita

aid for those 12 nations increased radically and surpassed the remaining LDCs in 2004.

With increasing violence and volatility, aid per capita has been increasing in those countries without actually decreasing the conflict.

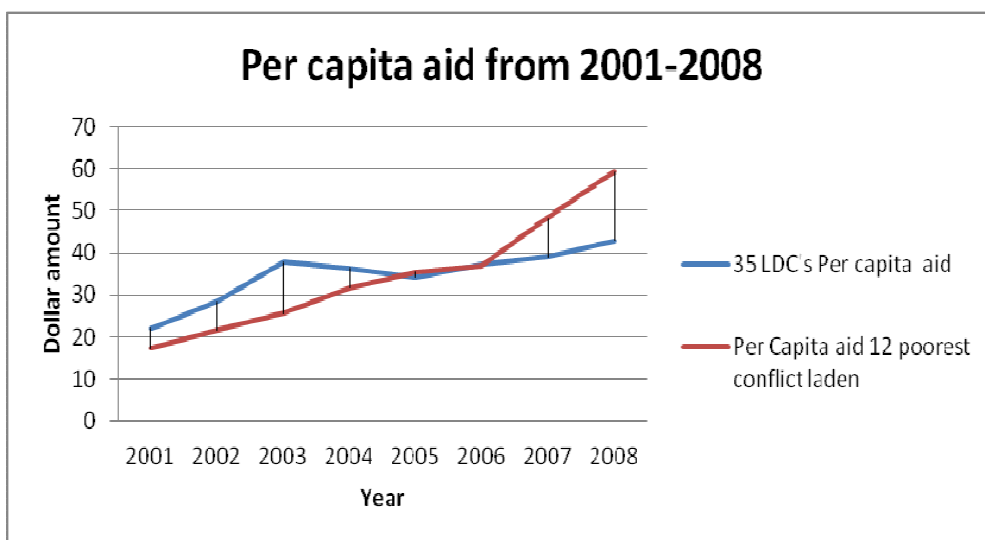


Figure 3.7: Recent comparison of LDCs and the twelve most conflict-prone poor countries. Source: World Bank, OECD.

The poorest of the poor that go through unrest do not receive adequate assistance when it is needed and deserved. However, when conflict and violence cause a state to fail, it starts receiving increasing levels of foreign aid.

3.3.5 Comparison Between Least Developed and Low Middle Income Countries

Next, the least developed countries (LDC) and low middle-income countries (LMIC) are compared. According to the United Nations, the LMIC's average GNI per capita is at least 1200 US dollars (\$1,200) higher than the LDCs. Figure 3.8 shows the comparison among the LDCs and Low Middle Income Countries (LMIC). Deservingly, the LDCs obtain more per capita aid than the LMICs.

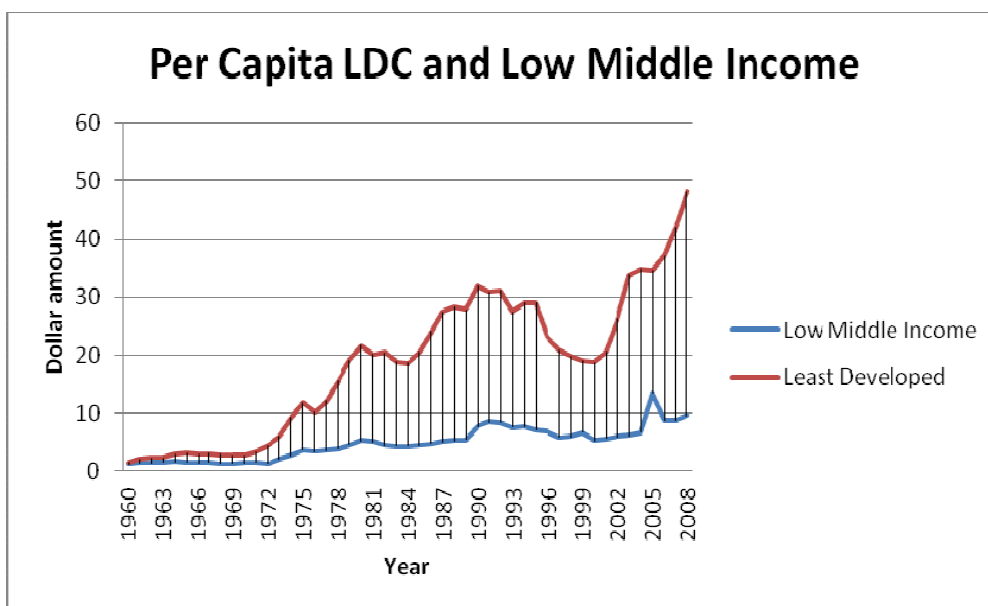


Figure 3.8: Comparison between LDC and LMIC. Source: World Bank, OECD.

However, to further verify these observations, the figure was re-estimated without India and China. The reasoning behind omitting India and China in this comparison is:

- The problem with India and China is wealth management, not scarcity of resources. Hence, per capita foreign aid is not a primary issue for development of these nations.
- Essentially, China and India receive assistance from first world (donor) countries through labor migration and outsourcing. The dollar amount of these endeavors translates into much higher revenue than foreign assistance.
- China and India have been collaborating in many entrepreneurial ventures with the developed world. These activities spur more economic development and

financial investment and they are of far greater value to both nations than the value of foreign assistance.

- China and India comprise more than one-third of the world's total population and more than half of the total GDP generated by the developing countries. Due to their high population, these economies are bound to receive lower per capita assistance.

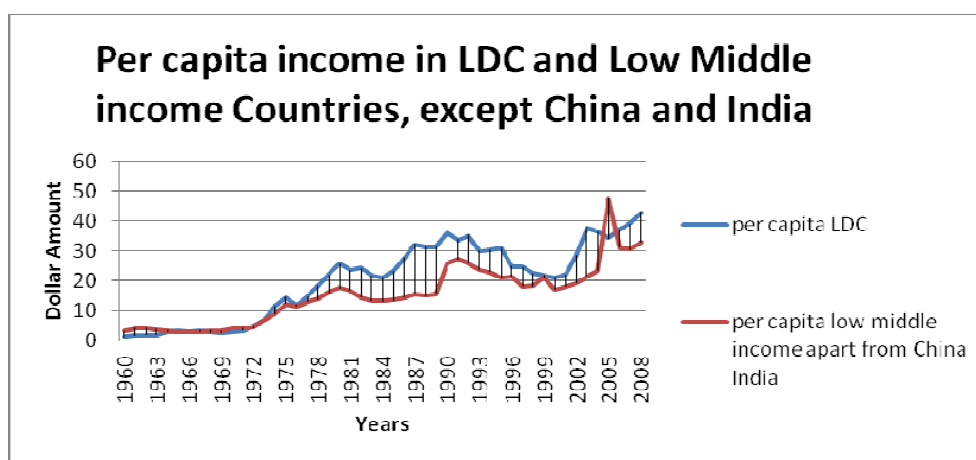


Figure 3.9: Per capita comparison LIMCs (without India and China) and LDCs.
Source: World Bank, OECD.

Figure 3.9 shows the comparison between the per capita aid for LDCs and LMICs without China and India. The figure suggests that after ignoring China and India, LDCs do not receive significantly higher amounts of per capita aid than LIMCs. The LIMC's per capita yearly income reaches as high as \$1705, whereas for LDCs, it is a meager \$700. The marginal benefit of a dollar is much higher in an LDC than in an LMIC. The evidence thus suggests that the impoverished are being deprived of due development attention and assistance strategies.

3.2.6 Comparison Between Low Middle-Income and Upper Middle-Income

Countries

Upper middle-income countries consist of semi-developed countries, such as Brazil, Indonesia, Philippines and South Korea (until recently). These countries are self-sufficient and have advanced levels of trade with the developed world. More

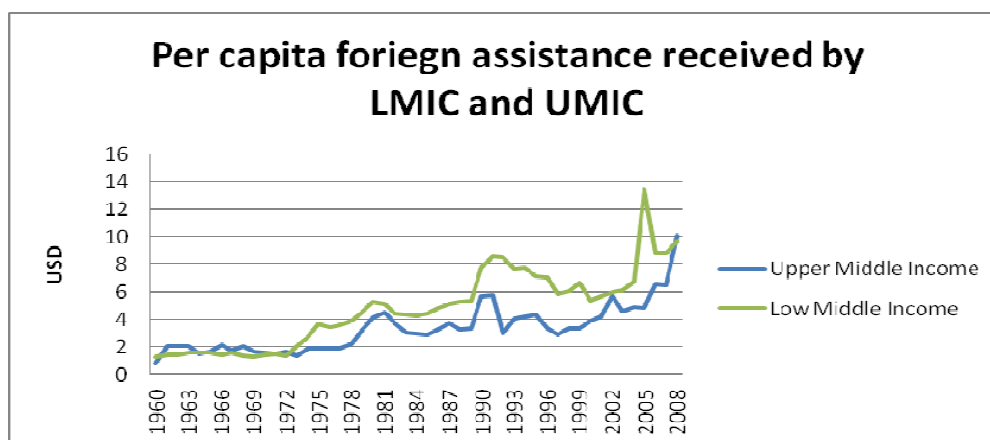


Figure 3.10: Comparison between LMIC and UMIC. Source: World Bank, OECD.

importantly, they attract substantial foreign direct investment. Relatively high levels of foreign aid (compared to the aid provided LDC and LMICs) would not affect these economies much because of their own large GDP. Recent research has shown that foreign assistance in the upper middle-income countries has not been particularly beneficial. Most of these countries prospered more when their official direct foreign assistance was curtailed⁷. Figure 3.10 compares LMICs and UMICs. The figure shows that LMICs obtain marginally more per capita aid than the UMICs. The LMICs receive per capita foreign assistance of 3 US dollars more than the UMICs.

⁷ William Easterly...Bureaucracy of foreign aid.

3.2.7 Comparison of Per Capita Aid of Conflict-Prone Countries and Associated Groups

An examination of countries that have undergone prolonged conflict in recent times will be beneficial to evaluate the effect conflict on foreign assistance. Lebanon, a 7000 year-old civilization in the Mediterranean, was a prospering country until the 1980s. Civil wars and conflict have radically affected the growth of its economy and social outlook. Even after the spread of extreme violence, Lebanon is considered

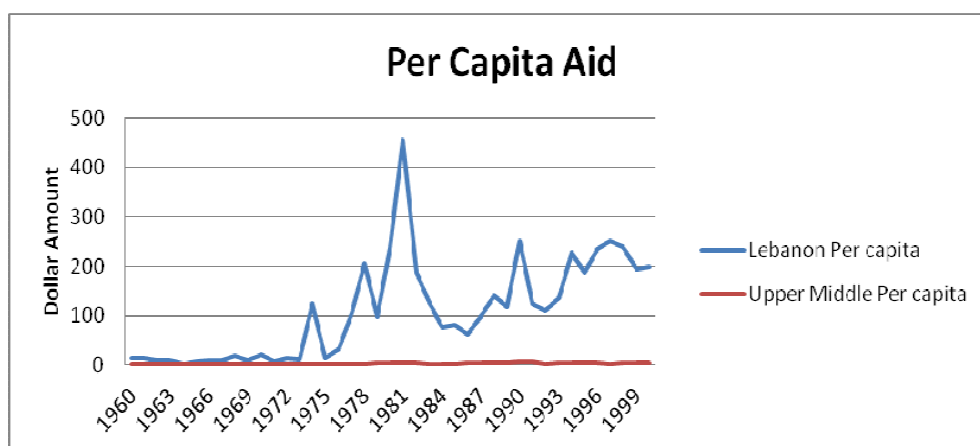


Figure 3.11: Comparison of Lebanon and UMIC nations. Source: World Bank, OECD.

an upper middle-income country (UMIC). It has a per capita GDP of 15,000 USD (IMF 2010 Report). However, Figure 3.11 shows that Lebanon received much more per capita aid than the UMICs. Lebanon gets several hundred times more per capita aid than the group it belongs to (UMIC), because it is considered a conflict-prone nation. However, its aid receipts are not constant and they apparently depend on the amount of conflict the nation experiences. After its civil war broke out, Lebanon began receiving more

attention from the donor community. Before the conflict, Lebanon received marginal amounts of aid. Assistance to the nation was provided only after violent conflict created severe socio-political instability. The assistance appears to have failed in mitigating the conflict in Lebanon, as the nation still is experiencing conflict. Conflict in Lebanon increased foreign assistance; however, increases in aid did not serve as a panacea for violence.

Figures 3.12 and 3.13 show per capita aid received by Pakistan and Iraq. Both countries are highly prone to conflict; however, they are not classified as LDCs. The figures compare the aid disbursed to Iraq and Pakistan with LMICs. Pakistan consistently received more aid than LMICs. However, careful examination reveals that the per capita aid of Pakistan has a much higher variance than the per capita aid of LMICs. Pakistan received more aid whenever conflict escalated, and the assistance declined thereafter until subsequent outbreaks of conflict. Since achieving nationhood, Pakistan has never been without violent conflict, possibly aggravated by inconsistencies in the application of foreign aid. Foreign assistance to Iraq is even more inconsistent. Figure 3.13 shows that apart from a period in the late 1970s, Iraq did not receive much per capita aid. But after that and around the Gulf War, it suddenly received a lot of attention and its official aid increased more than 20 times. As a result of the war with Iran, Iraq amassed an armed force consisting of more than a million people. But the country also incurred huge debts and did not invest in agricultural and industrial development. Iraq's attempts to annex Kuwait and possibly Saudi Arabia were linked to this debt problem and the need to gain control of greater oil reserves. The situation might

have been avoided if Iraq was provided with attention and foreign assistance before the Gulf War. Foreign aid disbursed after the Gulf War did not eradicate conflict, but nevertheless, foreign assistance decreased drastically in the late '90s. Iraq has experienced massive conflict after 1999 and its foreign aid sharply increased again.

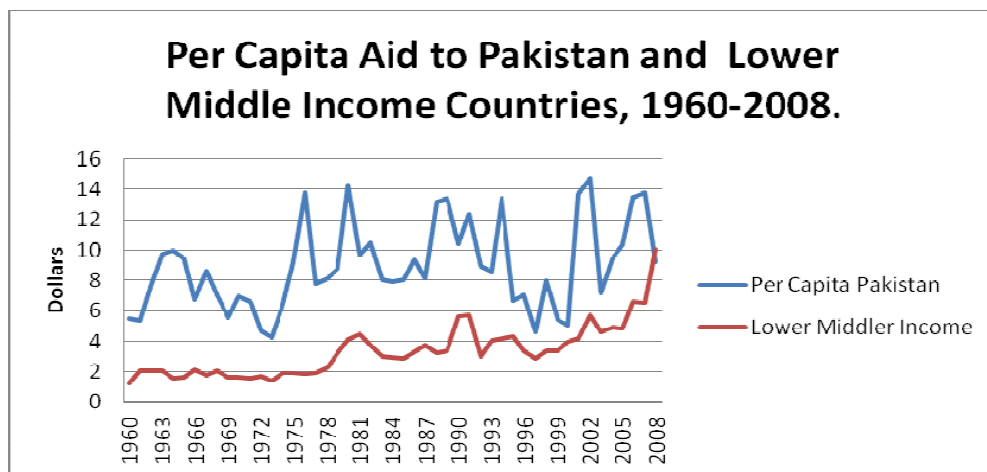


Figure 3.12: Comparison between per capita aid of LMICs and Pakistan. Source: World Bank, OECD.

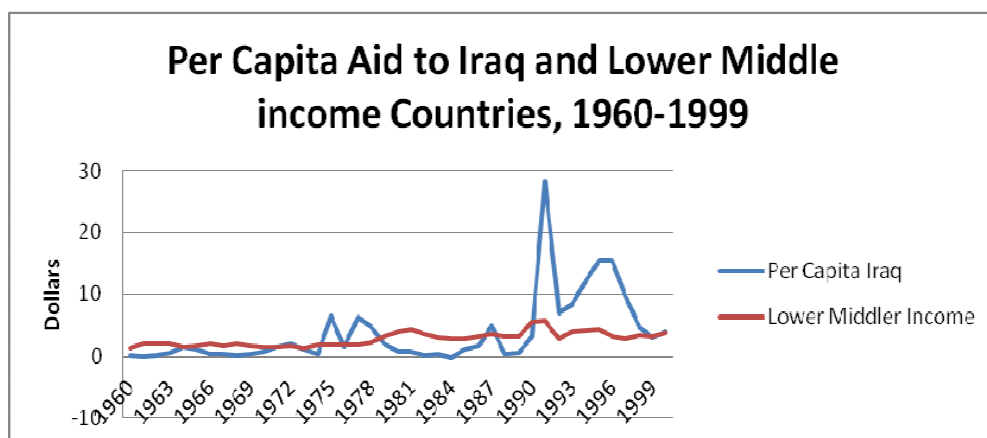


Figure 3.13: Comparison between per capita aid of Iraq and LMICs. Source: World Bank, OECD.

Figure 3.14 shows that, from 2002, Iraq's per capita aid increased precipitously. However, recently, foreign assistance to Iraq has been decreasing and will likely decrease further because of new donor policies that have indicated a decrease in future assistance. Iraq is not completely conflict free at the present time. Radical reductions in aid to Iraq may culminate in more conflict.

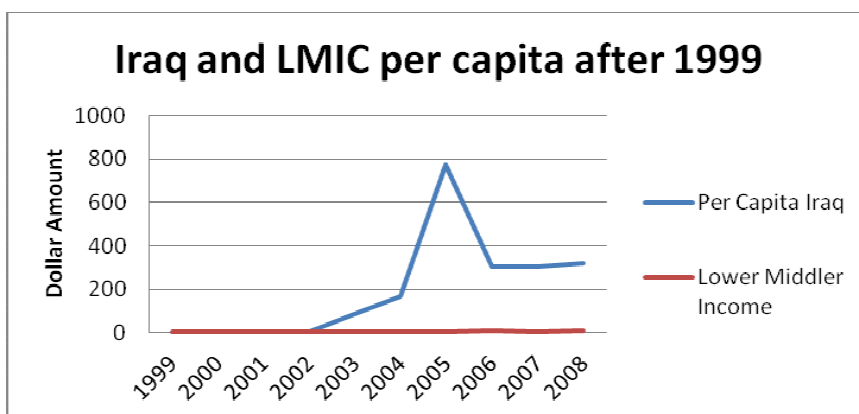


Figure 3.14: Iraq's per capita aid compared with LMIC 1999-2008. Source: World Bank, OECD.

Sudan and Tanzania are both LDCs in Africa. Historically, Sudan has been more violent and conflict prone than Tanzania. If anything, according to the IMF reports, Sudan's per capita income is higher than that of Tanzania. Figure 3.15 shows that on average Sudan received more per capita aid than Tanzania even though essentially the countries have similar conditions and belong in the same region. Tanzania's per capita aid has been monotonic and has mostly increased through the years. On the contrary, Sudan's per capita receipts for aid have a higher variance, with sharp decreases and increases, depending on the amount of conflict. Unfortunately, Sudan remains a conflict-prone nation, sporadically receiving more aid when conflict flares.

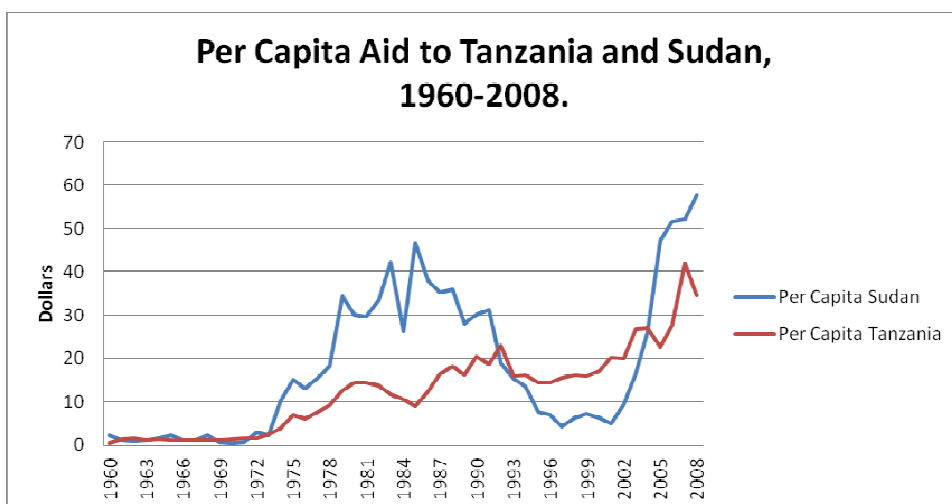


Figure 3.15: Per capita aid comparison between Sudan and Tanzania. Source: World Bank, OECD.

It is conspicuous that poor conflict-prone countries do not receive consistent per capita aid in accordance with their needs. Conflict-prone countries attract more per capita aid compared to countries that have the same geo- and socio-economic profiles. However, their receipt of aid has a higher variance and positive correlation between levels of conflict and amount of foreign assistance. It is apparent that foreign assistance has been unable to eradicate conflict and violence.

3.2.8 Foreign Aid on Different Sectors

The data for foreign aid for the different sectors was acquired from the OECD database. The different aid areas are agricultural development, civil society, government administration, food aid and food security programs, economic development and planning, basic health care, educational development and infrastructure building.

Unfortunately, the aggregate sectoral aid country level data is available only from 2002 to 2007. An extensive description of this data can be found in chapter V.

3.3 Data on Conflict

The literature review from chapter II demonstrates that peace and conflict indicates that data on conflict and violence can be diverse. Due to the diverse definitions of violence and conflict, there are several credible sources that provide different accounts and measures related to conflict. The Princeton University Database for conflict, wars and terrorism provides an invaluable description of the data sources and accounts available. For this particular research, conflict has been divided into two specific categories: international conflict and intra-country violence.

3.3.1 International Conflict

The Uppsala University (UCDP) database provides a dataset for international armed conflict (Uppsala Conflict Data Program, 2010). According to UCDP, armed conflict is “a contested incompatibility that concerns government or territory where the use of armed force between two parties, of which at least one is the government of a state, results in at least 25 battle-related deaths.” This database provides time series data from 1941 to 2009. It lists 1989 events of international conflict among all nations. For the purpose of this research, conflict events are distinguished according to their magnitude. The events are scaled numerically according to the magnitude of the fatalities. For example, if the event had less than 500 fatalities, then it was assigned one numeric value; if there were more than 500 fatalities but less than 10,000, it was assigned the next numeric value. Any event that resulted in over 10,000 fatalities was

assigned a higher numeric value. The dataset is constructed according to time (year) and individual countries. Since the financial assistance data commences from 1960 and most of the other indicators were made available from a later date, the international conflict data utilized is from 1960 onward.

Table 3.4: Twenty Most International Conflict-Prone Nations and Regions. Source: UPDB.

Country Name	Region
Colombia	South America
Chad	Africa
Angola	Africa
Sudan	Africa
Uganda	Africa
Guatemala	South/Central America
Afghanistan	Asia
Cambodia	Africa
Israel	Asia
Myanmar	Asia
Iraq	Asia
Ethiopia	Africa
India	Asia
Mozambique	Africa
Philippines	Asia
Somalia	Africa
Peru	South America
Algeria	Africa
Burundi	Africa
Yemen, Rep.	Asia

Table 3.4 provides the names and regions of the top 20 international conflict-prone countries. According to the database maintained by Uppsala University, Colombia is the most conflict prone nation. Since international conflict (according to UCDP) only needs one federal and/or state government, most events in Colombia do not comprise more than one international party. Many of these events have included the drug cartels

and domestic as well as international governments. In the top 20 conflict-prone countries, 10 are from Africa, seven from Asia and three from South/Central America. Apart from Israel and Iraq, all of the countries in this list have a high poverty head count ratio. Most of the countries (all of the countries in Africa) in top 20 have been ravaged by civil wars as well. The rest of the countries, such as India, Israel, Yemen, Uganda, Somalia and Ethiopia, had reoccurring issues of conflict with their neighbors. The first European country to make the list was Turkey at 24, which is actually around the Arab Peninsula. Most of the Sub-Saharan countries are in the top tier of this list. Ninety percent of South Asia also comes in the top 15% of the list as well. This is quite ominous, as South Asia essentially holds about one-fifth of the world's total population. Ninety percent of the nations in the top 20% of the list also have a high poverty index. Most of the countries in the bottom tier are from Europe and have a very low rate of conflict, with low-income inequality and even a lower rate of poverty. Smaller islands, such as Saint Kitts, Neiva and the Solomon Islands, also have a very low propensity towards conflict.

3.3.2. Terrorism and Violence Data

Amassing and interpreting data on intra-country violence was more challenging. The most extensive dataset of intra-country violence has been constructed by King and Lowe (2003). The King and Lowe data are coded by computer from millions of Reuters news reports and provide an account of 10 million events. Though very extensive, the dataset do not provide an explicit account of the nature of the events. It is understood that the computer algorithm only recognized random news columns citing events of

unrest. Hence, presumably this dataset has a significant bias in detecting events in developed nations. For example, even a false alarm or minor event in US/UK is reported promptly by Reuters, however, murders of peasants in Southern Sudan may very well go unnoticed. Hence, for objective conflict research, this data is not very efficient. It is noteworthy that the compilers of this dataset have thus far not used this data to predict or analyze conflict.

The inter-country terrorism and violence data collected and used for the comprehensive research was acquired from the Global Terrorism Database (GTD) (Global Terrorism Database 2010). GTD is an open-source database including information on terrorist events around the world from 1970 through 2008, where they have reported over 87,000 incidents from all over the world. The incidents have been divided into nine parts. They are:

- Assassination
- Bombing
- Hijacking
- Hostage Taking (Kidnapping)
- Hostage Taking (Barricade)
- Armed Assault
- Infrastructure Attack
- Unarmed Assault
- Unknown

Incidents were coded and aggregated for each country for every year. Hence, if a country had two incidents each in each of the nine sectors, the total amount of incidents for a country for that particular year would be 18. The Appendix provides the aggregate amount of incidents for every individual country from highest to lowest. Table 3.5 provides the top 20 nations with the most reported and documented inter-county conflict

and violence. Unlike, the conflict incidents, the top countries on this list are diverse and are not limited to impoverished countries. The two main reasons for these phenomena may be: I) reports are more readily available to the news media and, as a result, get coverage if the incident is in a developed country as opposed to a developing country or, II) although developed countries take precautionary measures to avoid conflict, often radical organizations from underdeveloped countries target them for violent activities. Table 3.5 reveals Columbia again as topping the list as the country with the greatest amount of violence, followed by the two neighboring nations of Peru and El Salvador.

Table 3.5: List of the Highest Conflict-Prone Countries From 1970. Source: GTD.

Ranking	Country Name	Region
1	Colombia	South America
2	Peru	South America
3	El Salvador	South/Central America
4	India	Asia
5	Ireland	Europe
6	Spain	Europe
7	Iraq	Asia
8	Israel	Asia
9	Turkey	Europe
10	Pakistan	Asia
11	Philippines	Asia
12	Sri Lanka	Asia
13	Chile	South America
14	Guatemala	South/Central America
15	Nicaragua	Africa
16	Lebanon	Asia
17	South Africa	Africa
18	Algeria	Africa
19	Italy	Europe
20	United States	North America

Almost all of South Asia including India, Pakistan and Sri Lanka are at the top of the list as well, because of their own mutual problems and political unrest. The top two European nations are Ireland and Spain; both may have a high propensity towards inter-country violence due to unrest with minority groups and areas having different sovereignty. Mediterranean countries, such as Israel, Turkey and Lebanon, are in the top twenty as well. Nicaragua, South Africa and Algeria represent Africa in the top twenty. Although all the continents are well represented in the top twenty, it is suspected that since African incidents lack reporting, Africa may well have a downward bias.

3.3.3 Sudan Violence Data

Data for violence in Sudan was collected from the Worldwide Incidents Tracking System (WITS) database (WITS Database 2011). WITS is the United States' National Counterterrorism Center's database of terrorist incidents. According to the experts of the United States Counter Terrorism Unit, terrorism occurs "when groups or individuals acting on political motivation deliberately or recklessly attack civilians and non-combatants or their property and the attack does not fall into another special category of political violence, such as crime, rioting, or tribal violence." This database categorizes every incident by "event type." Similar GTD event types are coded in the database as armed attack, arson/firebombing, assassination, assault, barricade/hostage, bombing, CBRN, crime, firebombing, hijacking, hoax, kidnapping, near miss/non-attack, other, theft, unknown and vandalism. For Sudan, WITS provided monthly data from 2004 to November 2010. Since the time span is so small, the magnitude of events is also important in determining the effect of the conflict and violent activities. Hence, all the

fatalities were added to determine the magnitude of violence for each month. For example, suppose the month of May in 2005 had two conflicts, each of which had 30 people die and 40 people were injured. Then, May would have a cumulative violence score of $(30 \times 2 + 40 \times 2) = 140$. A total of 367 incidents were recorded. Table 3.6 shows the summary statistics of the coded data. The mean score of each month's terrorist/violent fatalities is 56, a high amount. The median is 29, highest is 382 and the standard deviation of 71 implies that the situation in Sudan is a violent area.

Table 3.6: Sudan's Summary Statistics for Violence from March 2004 to November 2010. Source: WITS.

Mean	55.67
StDev	70.93
Min	0
Median	29
Max	382
Skewness	2.33
Kurtosis	6.24

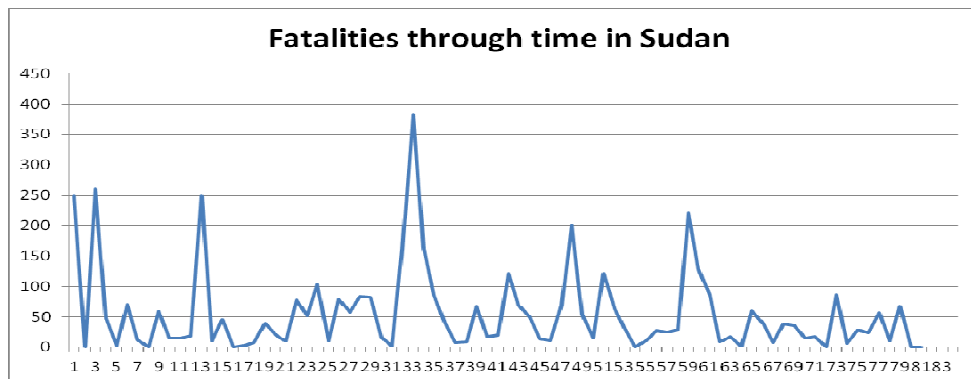


Figure 3.16: Fatalities by month in Sudan from March 2004 to November 2010. Source: WITS.

Figure 3.16 shows the time series movement of the “cumulative score” of violence in Sudan over time. Eighty-one months of total data were collected from March 2004 to November 2010. Figure 3.14 provides a time series representation of the data. The figure reveals that violence in Sudan is consistent and does not really depict a clear increase or decrease through time. Although after recent endeavors from world organizations and various nations, conflict appears to have reduced marginally. This reduction may also be attributed to the birth of the new nation.

3.4 Income Inequality (Gini Indices)

The income inequality data has been collected from the World Income Inequality database (UNU-WIDER) procured by United Nations University (Income Inequality Database 2008). This database collects and stores information on Gini indices (income inequality) from both the developed and developing world (Deiningen and Squire 1996). This collection program originated as part of the “Global Trend in Inequality and Poverty Program.” The uniqueness of this dataset lies in the comprehensive analyses and inclusion of all the accepted methods and databases. The WIDER dataset overlaps and builds on the academically popular “Deiningen and Squire” (2004) inequality dataset provided by the World Bank. This database also considers national surveys and other validated studies, along with UNICEF databases, to gather their intended inequality data. However, there can be three main criticisms of this inequality dataset. Countries and national surveys use diverse methods to calculate the Gini indices. For example, most developed countries use consumption data to calculate inequality, whereas most developing countries use income to estimate Gini indices. Another drawback is that

some of the data and estimations of inequality only consider metropolitan areas and ignore rural inequality. The third problem is that these indices would have some downward bias, as data for developed nations has been better reported compared to underdeveloped countries.

The UNI-WIDER income inequality data is the most comprehensive and provides the highest number of data points with considerable accuracy. A 0 Gini means complete equality, while a Gini of 100 would imply a completely unequal distribution. The summary statistics of the data is shown in Table 3.7. The total number of data points is 5313, which is quite comprehensive. The standard deviation is 11 and the mean for all countries is 38.

This Gini level is significantly lower than the estimated Gini of the world, which is estimated to be between 56 and 66 (Sutcliffe 2007). This lower median Gini can be calculated in Mali in 1992. Figure 3.17 provides the underlying Gaussian kernel probability distribution function (PDF) of the Gini indices. Due to the lower income inequalities of the developed nations and their majority presence in the dataset, the PDF is skewed towards the left.

Table 3.7: Summary Statistics of GINI Distribution. Source: UN-WIDER.

Mean	38.1
StDev	11.02
95 % LCI	37.75
95 % UCI	38.43
CV	28.93
Min	12.1
Median	36.5
Max	78.6
Skewness	0.39
Kurtosis	-0.50
Count	5313

largely be attributed to the smaller European and Asian economies, with low income inequality. The EU Gini has been estimated to be at 31 (Eurofound 2009). The minimum Gini of 12 has been reported by China in 1982, while the highest income inequality of 78.

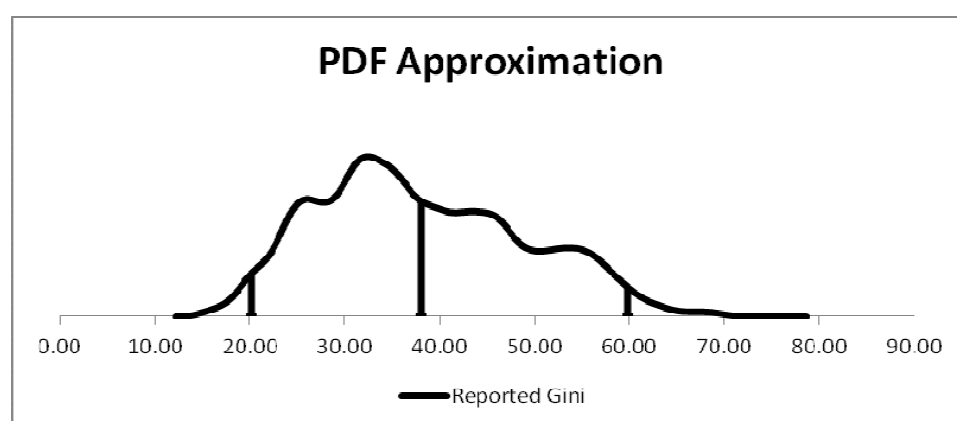
**Figure 3.17: The probability distribution function of Gini Indices. Source: UN-WIDER.**

Table 3.8: Summary Statistics of Gini Distribution of the Developing Countries.
Source: UN-WIDER.

Mean	44.2
StDev	10.1
95 % LCI	43.79
95 % UCI	44.65
CV	22.83
Min	12.1
Median	44.3
Max	77.6
Skewness	0.037
Kurtosis	-0.48
Sum	124406.5
Count	2813

Since this research concerns conflict-prone developing nations, the developing nations were examined separately and presented in Table 3.8. The mean increased considerably by 6.1 points to 44.2. The standard deviation does not change significantly. The Minimum and maximum data points standard deviation does not change significantly. The Minimum and maximum data points remain the same, implying that the greatest income inequality occurs in the developing world.

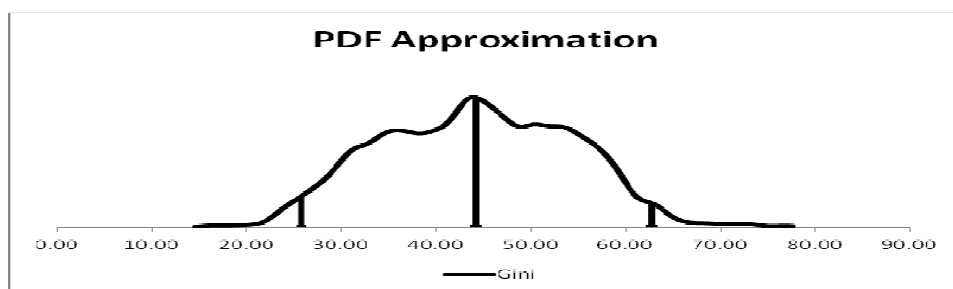


Figure 3.18: The probability distribution function of Gini indices of developing nations from 1960-2009. Source: UN-WIDER.

Table 3.9: Countries with the highest Gini indices. Source: UN-WIDER.

Rank	Country	Region
1	Zambia	Africa
2	Burkina Faso	Africa
3	Mauritania	Africa
4	Namibia	Africa
5	Zimbabwe	Africa
6	Mali	Africa
7	Gambia	Africa
8	Tanzania	Africa
9	Guinea	Africa
10	Kenya	Africa

Figure 3.18 shows the PDF function of Gini of developing nations. Gini indices follow a normal distribution. More importantly, the distribution is not skewed to the left anymore because of the absence of the developed nations. Hence, the PDF has shifted more towards the right. A comparison of the data in Tables 3.9 with that in Table 3.3 suggests that conflict-prone underdeveloped countries with low per capita income have the highest income inequality. All of these countries with high Gini indices are from Africa. Thus far, the data has shown that this continent is arguably the most conflict impoverished and unequal.

3.5 Gross Domestic Product (GDP) Data

The GDP data has been collected from the World Bank's website (World Bank Database 2011). For this research, aggregate data from 1960-2010 were considered. Table 3.10 depicts the top five countries with the highest and lowest amount of average

Table 3.10: Top and bottom countries in terms of average GDP from 1960.
Source: World Bank.

Ranking	Country	Region
1	United States	North America
2	Japan	Asia
3	Germany	Europe
4	France	Europe
5	United Kingdom	Europe
212	St. Kitts and Nevis	Central America
213	Tonga	Africa
214	Sao Tome and Principe	Africa
215	Palau	Africa
216	Marshall Islands	North America
217	Kiribati	Central America

GDP from 1960. The United States and Japan occupy the first two places. While most of the Western European countries' lie in the top fifty, they also occupy the next three places. The lowest ranked countries are mostly small islands. Most of the African countries lie in the bottom tier of this group. (South) Asian nations that are extremely poor rank higher on this list due to their huge population and size.

3.6 Gross National Income Per Capita

Gross national income (GNI) per capita provides a better measure of the well being of citizens' of a country. Hence, data on GNI for all the countries were collected from the World Bank. Data accumulated from 1960-2008 show that European and North American nations have the highest GNI per capita. Table 3.11 shows the top and bottom five GNI per capita nations. In the top five, only the United States is the non-European country, as Scandinavian countries dominate the list. Apart from Nepal, all the

Table 3.11: Highest and Lowest Per Capita GNI From 1960 to 2008. Source: World Bank.

Rank	Country	Region	Per capita average USD
1	Luxembourg	Europe	26043
2	Switzerland	Europe	25445
3	United States	North America	24586
4	Norway	Europe	24444
5	Denmark	Europe	24292
188	Ethiopia	Africa	191
189	Nepal	Asia	171
190	Malawi	Africa	149
191	Burundi	Africa	139
192	Somalia	Africa	113

other countries in the bottom five are from Africa. Most of the bottom twenty countries, such as Burundi, Malawi, Ethiopia, Somalia, Chad and Zimbabwe, are conflict prone nations.

3.7 Infant Mortality Under Five

Data for infant mortality under age five has been collected from the World Bank. This mortality rate provides the probability per 1000 that an infant would not survive until the age of five, if subject to current age-specific mortality rates. Although collected through the World Bank, these estimates are primarily developed by UN Inter-agency Groups, such as UNICEF, WHO, World Bank, UN DES and UNPD for Child Mortality Estimation. Unfortunately, the data is not consistent and there appears to be lower data points for the developing nations. Figure 3.19 shows that the European areas have the lowest mortality rate in the world.

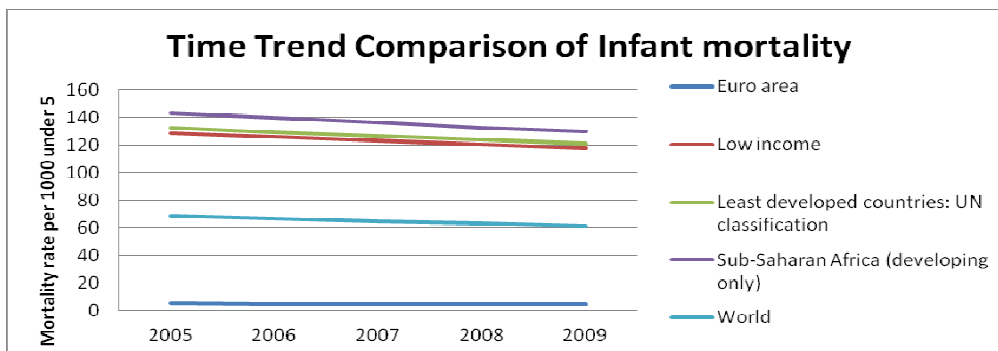


Figure 3.19: Area wide trend of infant mortality. Source: World Bank.

Less than five children out of 1000 die before reaching the age of five in the Euro zones. For the entire world, the number has decreased from around 70 to around 60 in the last four years. However, the situation appears to be bleak for the Sub-Saharan Africa and the Least Developed countries. It is portrayed that every year, more than 125 children die out of every 1000 in these regions.

3.8 Life Expectancy at Birth

Life expectancy at birth estimates the number of years an infant would live if prevailing patterns of mortality at the time of his or her birth remained constant. The life expectancy data is inconsistent and are not available for all countries. The World Bank's collection of the life expectancy data is the most comprehensive, as it entails data from: (1) United Nations Population Division, 2009, (2) Census reports and other statistical publications from individual nations, (3) Eurostat's Demographic Statistics, (4) Secretariat of the Pacific Community and (5) U.S. Census Bureau: International Database.

A higher life expectancy implies better living standards, education, knowledge, access to medication and all other basic needs. Table 3.12 provides the top six and bottom seven countries according to their average life expectancies. The figure also shows the average expectancy age and region of countries in the ranking. The top six countries are all from Europe, whereas six of the bottom seven countries are from Africa. Afghanistan has the lowest life expectancy, with 38 years, and San Marino has the highest, with 81 years. This significant difference points to the stark differences in livelihoods and standards of living between the two countries. All the countries in the bottom seven have high poverty rates, along with frequent conflicts. The literacy levels in these specific countries are especially low as well. To depict differences in life expectancy levels between Europe and Sub-Saharan Africa, Figure 3.20 provides a time series region-wise Figural illustration from 1990. The figure shows that, on average, Europe's life expectancy is 30 years higher than Sub-Saharan Africa's. Low income and least developed countries have 20-year lower average life expectancies when compared to the entire world.

Table 3.12: Countries with the highest and lowest life expectancy. Source: World Bank.

Ranking	Country	Age	Region
1	San Marino	81.8	Europe
2	Liechtenstein	81.6	Europe
3	Faeroe Islands	79.2	Europe
4	Isle of Man	77.2	Europe
5	Iceland	76.9	Europe
6	Sweden	76.8	Europe
208	Rwanda	42.4	Africa
209	Niger	41.8	Africa
210	Mali	41.5	Africa
211	Guinea-Bissau	41.5	Africa
212	Angola	40.5	Africa
213	Sierra Leone	39.88	Africa
214	Afghanistan	38.93	Asia

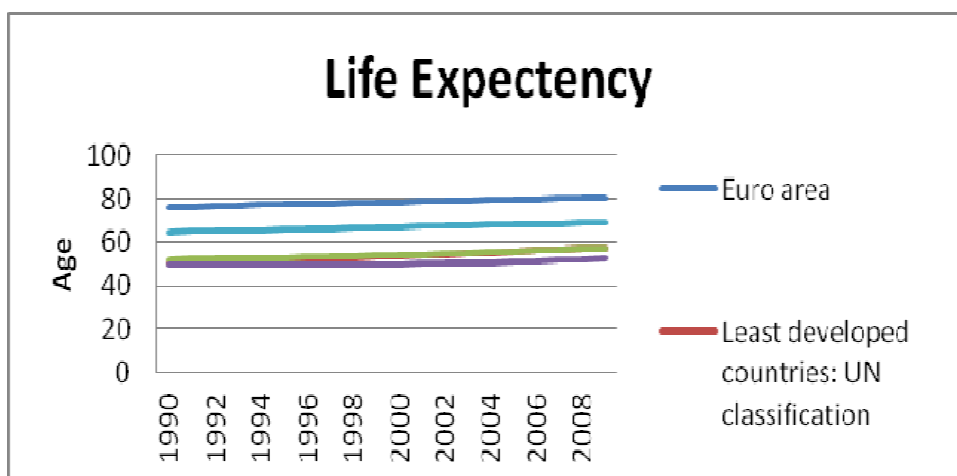


Figure 3.20: Life expectancy by region. Source: World Bank.

3.9 Literacy Rate

According to the World Bank, the world literacy rate in 2009 was 93%. “Adult literacy rate” refers to the percentage of people over age 15 who can read and write a short, simple statement on their everyday life. Although the World Bank intends to provide this data from the 1960s, the first data point initiates from 1976. Reportedly, the World Bank has collected this data from the United Nations Educational, Scientific and Cultural Organization (UNESCO) Institute for Statistics. Table 3.13 provides a list of countries that have the lowest literacy rates. The list closely resembles the life expectancy rate list, with Afghanistan having the lowest average literacy rate and nine of the ten bottom countries coming from Africa. More importantly, most of these Sub-

Table 3.13: Bottom Ten Countries with the Lowest Average Literacy Rates. Source: World Bank.

Ranking	Country Name	Region	Average
1	Afghanistan	Asia	18.15
2	Burkina Faso	Africa	18.20
3	Niger	Africa	19.03
4	Mali	Africa	19.66
5	Chad	Africa	24.63
6	Benin	Africa	30.00
7	Ethiopia	Africa	30.91
8	Guinea	Africa	34.46
9	Guinea-Bissau	Africa	37.83
10	Sierra Leone	Africa	37.87

Saharan African countries with low literacy rates are conflict-prone impoverished nations.

Table 3.14: Top Ten Countries with the Highest Average Literacy Rates. Source: World Bank.

Ranking	Country Name	Region	Average
1	Korea, Dem. Rep.	Asia	99.9
2	Estonia	Europe	99.7
3	Georgia	Europe	99.6
4	Latvia	Europe	99.6
5	Slovenia	Europe	99.6
6	Ukraine	Europe	99.5
7	Lithuania	Europe	99.2
8	Armenia	Europe	99.2
9	Poland	Europe	99.2
10	Tonga	Africa	99.1

Considering that the average literacy for the whole world is 93%, the bottom tier countries have relatively low literacy rates. Table 3.14 illustrates countries with the highest average literacy rate over the years. South Korea, with an average literacy rate of 99.99%, is considered the most literate nation in the world. All the other countries in the top nine are from Europe, with stable economies and good access to education. Most of the top ten countries have nearly 100% literacy rates compared to Afghanistan's 18% literacy rate. These observations clearly imply specific correlations with literacy, poverty and conflict.

3.10 Immunization Rate

Immunization rates collected from the World Bank measure the percentage of children age 12-23 months who received vaccinations before 12 months or at any time before the survey. A child is considered adequately immunized against diphtheria, pertussis (or whooping cough) and tetanus (DPT) after receiving three doses of vaccine.

The data has been provided to the World Bank by the World Health Organization and UNICEF. Although it has some missing data points, the data commences from 1961.

Table 3.15 lists the top ten countries with the highest immunization rates, their regions and actual rates. They are small European nations with a reasonably stable economy. All of these countries have an immunization rate higher than 96%. On the other hand, seven of the bottom ten countries in terms of immunization rate are from Africa. As Table 3.16 shows, all of these countries are conflict-prone, corrupt and impoverished with very low access to better lives and livelihood. The average mean immunization rates for the bottom ten countries are around thirty percentage points; sixty-six percentage points

Table 3.15: Top Ten Countries with the Highest Immunization Rates. Source: World Bank, WHO.

Ranking	Country	Immunization rate per 100 persons	Region
1	Hungary	99	Europe
2	Slovak Republic	99	Europe
3	Monaco	98.9	Europe
4	Sweden	98.8	Europe
5	Czech Republic	97.9	Europe
6	Iceland	97.9	Europe
7	Finland	96.9	Europe
8	Netherlands	96.8	Europe
9	Poland	96.8	Europe
10	San Marino	96.8	Europe

lower than the top ones. Low immunization rates are indicators of reduced access to knowledge, medicine, education, health care, property entitlement, wealth and human rights.

Table 3.16: Twenty Countries with the Lowest Immunization Rates from 1960-2009. Source: World Bank, WHO.

Ranking	Country Name	Immunization rate per 100 persons	Region
1	Chad	18	Africa
2	Somalia	24	Africa
3	Niger	26	Africa
4	Nigeria	33	Africa
5	Angola	33	Africa
6	Afghanistan	35	Asia
7	Lao PDR	35	Asia
8	Congo, Dem. Rep.	35	Africa
9	Haiti	39	Central America
10	Guinea	40	Africa

Figure 3.21 provides a time trend illustration of immunization rates in different regions. Europe and high income areas have significantly higher immunization rates than the LDCs and African nations. Immunization rates of African and LDC countries have been increasing in the past two decades.

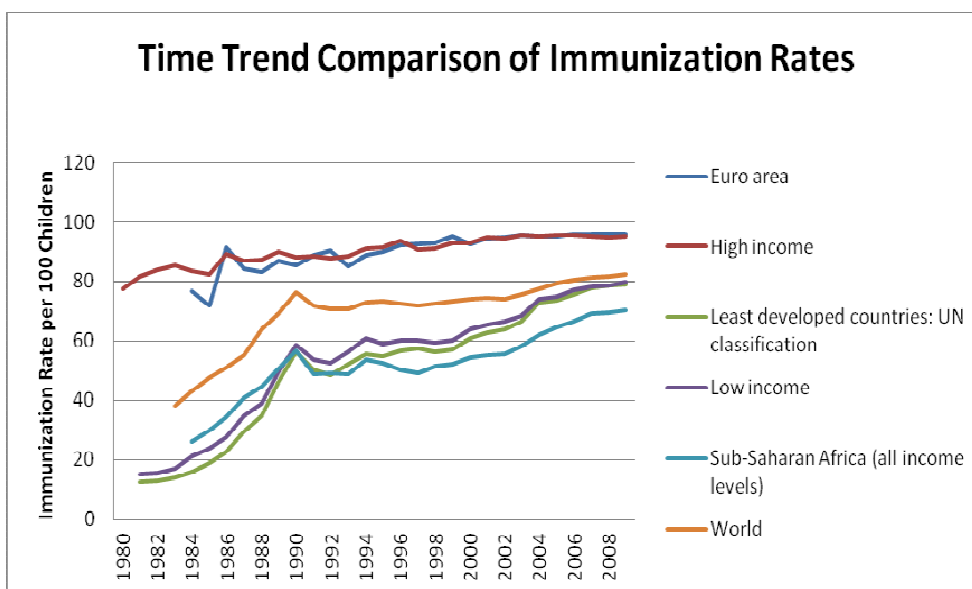


Figure 3.21: Time trend immunization rates of different regions. Source: World Bank, WHO.

3.11 Poverty

The World Bank provides two estimations of poverty. Both measure poverty through a dollar amount per day. The first one draws the poverty line under \$1.25 a day, while the second starts at under \$2 a day. Tables 3.17 and 3.18 list the countries belonging in the bottom tier of the poverty list. Both tables affirm that the dollar comparisons are quite consistent and similar. All of the countries belonging in the bottom ten are from Africa. There are other measures of poverty as well; however, since this study incorporates a comprehensive analysis of all countries, a universal dollar measure appears to be the most appropriate. The World Bank prepared these indices

Table 3.17: List of the Most impoverished (\$1.25 a day). Source: World Bank.

Ranking	Country Name	Average	Region
1	Burundi	41.29	Africa
2	Liberia	40.78	Africa
3	Malawi	39.13	Africa
4	Central African Republic	38.99	Africa
5	Swaziland	38.56	Africa
6	Madagascar	38.37	Africa
7	Tanzania	34.87	Africa
8	Mozambique	34.18	Africa
9	Rwanda	32.94	Africa
10	Sierra Leone	32.55	Africa

from poverty assessments of countries in which it has active programs and from collaboration with national institutions other development agencies and civil society,

Table 3.18: List of the most impoverished (\$2 a day). Source: World Bank.

Ranking	Country Name	Average	Region
1	Burundi	59.81	Africa
2	Liberia	59.51	Africa
3	Malawi	57.02	Africa
4	Madagascar	55.79	Africa
5	Tanzania	54.01	Africa
6	Swaziland	53.745	Africa
7	Central African Republic	53.61	Africa
8	Mozambique	51.95	Africa
9	Rwanda	51.57	Africa
10	Zambia	47.16	Africa

including poor people's organizations. These measures are well respected and universally used. The data extends from 1978 through 2008. The dataset has many missing data points. Although this data is widely used, it presents some stark inconsistencies compared to the other variables. For example, according to the World Bank, Tunisia has claimed to have a 5% poverty headcount in 1990 and 3% in 2010. For a country that ranks 134th in the world, with an average GNI of \$1134 per capita, an only 3% poverty headcount appears to be highly improbable. Pakistan, one of the most politically, financially and socially unstable nations in the world, has been documented to have decreased its poverty headcount by 26% in the last 20 years. Bosnia, one of the most impoverished and conflict prone European nations, is listed as having 5% of its total population under the poverty line. Guyana, one of the most impoverished nations in the world, only has a 6% poverty headcount index, according to the World Bank dataset. With a GNI per capita of only \$694 a year, this Island has a similar profile to the Congo. The Congo has an average headcount poverty index of more than 42%.

3.12 Sudan Commodity Data

A total of 82 data points of monthly estimations on prices from 2006 to 2010 was collected, consisting of the three most important food commodities of Sudan. The data was initially prepared by the Sudanese Ministry of Agriculture and later verified by the United Nations World Food Program.

3.12.1 Sorghum

The major crop and main staple food in Sudan, Sorghum (Feterita), accounted for 26% of the total dietary energy supply (DES) of the Sudanese population. On average, in

2004-08, per capita consumption (as food) of Sorghum (Feterita) was 88 kg/yr. Sudan is close to being self-sufficient in sorghum production.

3.12.2 Millet

Millet accounted for 5% of the total dietary energy supply (DES) in 2003-05. On average in 2004-08, the per capita consumption (as food) of Millet was 15 kg/yr. Sudan is self sufficient in millet production.

3.12.3 Wheat

Wheat is the second most important staple food in Sudan and it is mostly imported. Wheat and wheat products accounted for 15% of the total dietary energy supply (DES) in 2003-05. On average in 2004-08, the per capita consumption (as food) of wheat and wheat products was 47 kg/yr. The self-sufficiency ratio of wheat and wheat products is 28%.

3.13 Qualitative Data on Iraq

The qualitative data on Iraq is the result of a joint effort undertaken by the US Army Tenth Mountain Division and Team Borlaug in the eight provinces of Babil, Wasit, Diwaniya, Karbala, Najaf, Maysan, Muthana and Dhi Kar. At the request of the US military in Iraq, the Norman Borlaug Institute at Texas A&M University undertook assessment, planning and implementation of agricultural development in Iraq. From June 2008 to September 2009, four multi-disciplinary teams totaling 29 agricultural specialists spent 154 person months in 14 Iraqi provinces, excluding Kurdistan. They were facilitated by respective multi-national forces. The teams spent about five days per week observing farm and agribusiness operations interviewing farmers, community

leaders and agribusiness persons and planning and implementing projects. Funded by the Department of Defense (DoD) under the direction of the DoD Task Force for Business and Stability Operations (TFBSO), the teams were embedded with military units at forward operating bases (FOBs). The work was conducted in cooperation with Provincial Reconstruction Teams (PRTs) and USDA/FAS, and occasionally with USAID projects operating in-country.

3.14 Conclusion

This is a comprehensive dataset that can support unique analyses of conflict, poverty and development assistance that has heretofore not been possible. Chapters IV, V and VII use the dataset and test the theories and notions proposed in the document.

CHAPTER IV

CONFLICT, AID AND POVERTY: CAUSE, EFFECT AND PREDICTION

4.1 Introduction

In 2010, President Obama modified the United States approach to international diplomacy and development. He officially ended the “War on Terror,” stressing new partnerships and multilateral democracy. Nevertheless, the thought underlying US policy on conflict, poverty and development assistance remains the same. In his 2010 *Hyde Park Herald* article, the current US President stated, “This lack of empathy isn’t... unique to a particular culture, religion, or ethnicity.” It grows “out of a climate of poverty and ignorance, helplessness and despair.” In his March 2002 Monterrey speech, President Bush had stated, “We fight against poverty because hope is an answer to terror” (Cited in Krueger et al. 2003, p 199). Leading academics, such as Sachs (2005), Tyson (2001) and Sokolsky and McMillan (2002), have also advocated poverty reduction and socio-economic development in order to reduce violent conflict. Millennium Development Goals and new United Nation’s Development programs have been designed to eradicate conflict through socio-economic development. The United Nations Assembly (2005) asserted, “as conducive to the spread of terrorism, the strategy’s plan of action stresses the importance of achieving the UN’s Millennium Development Goals (MDGs), resolving conflicts and promoting dialogue and tolerance between civilizations.” The millennium challenge account takes the same stance on international development. However, academics (Krueger 2003, Collier and Hoeffler 2000, Goodhand 2001 and Piazza 2004) have been critical of the policies that envision

poverty and well being as the root cause of violence. The more conventional approach to mitigate violence is inspired by Truman's Point Four Program and President Carter's Camp David accords (Lenczowsk 1990). Both were designed to ensure security and stymie conflict. According to these agreements, violence and/or terrorism can be mitigated by providing the conflict-prone regions with significant monetary assistance. Recently, non-military foreign assistance is disbursed under the mandates and presumptions that conflict-prone nations would be able to design counter terrorism programs, generate employment, youth education programs and other mechanisms that would directly reduce acts of violence. Foreign assistance history indicates that most top-aid receiving nations (including Israel and Egypt) are conflict prone. More recently, development plans and spending in Iraq and Afghanistan depict a plethora of monetary assistance to mitigate terrorism (Moss et al. 2005). The idea appears to be that violent conflict may also cause chronic poverty.

The discussions and propositions of this chapter intend to contribute to the existing scholarly work on foreign assistance, conflict and socio-economic development. A theoretical model is proposed that would provide an understanding of the actions embarked on by the donors and recipients in the aid market under current mandates. Following that, an empirical analysis is presented through directed acyclic graphs (DAG) that describe the causal relationships between poverty, foreign assistance and socio-economic indicators.

4.2 Contemporary Thoughts and Research

None of the current academic research demonstrates a direct causal relationship between poverty, inequality, foreign aid and conflict. However, among proponents, the general consensus appears to be that the relationship between foreign assistance, poverty and terrorism is complex, cyclically causal and positively related. A recent study (Kibriya, Price et al. 2010) shows that impoverished nations do not garner attention and assistance until they experience extreme conflict. The idea of relative poverty and inequality causing deprivation comes from Karl Marx or Alexis de Tocqueville. Amartya Sen (1997) suggests a causal relationship between inequality and conflict. He acknowledges the presence of inequality in a conflict-prone rebel society. However, Sen perceives that inequality and rebellion have a dual relationship, both being the cause and effect. Political scientist Gurr (1970) claims that conflict brews from the expectations of a social group. He (Gurr et al. 2001) claims that collective violence is the result of deprivation or at least the feeling of being neglected. Nafziger and Auvinen (2002), along with Stewart (2000), discover a positive relationship between the occurrence of civil war and income inequality. Both of these researchers study a relatively isolated society with no or little international intervention. Additionally, the period investigated by Nafziger and Auvinen (2002) lacks robustness, as it does not consist of a long time series. Stewart (2000), in her case study of Uganda, illustrates her concept of horizontal inequality and social unrest. Neilson et al. (2010) has claimed that foreign aid shocks are the causes of violent conflict. They argue that a sudden decrease in foreign assistance inadvertently creates a disorder in the balance of power and creates conflict. Neilson et

al. (2010) portray a model in which the power of rebel groups increases during aid shocks. A case study of Mexico shows (Maystadt 2008) that rebel groups get stronger and more boisterous after an increase in aid raises income inequality. As mentioned earlier, former President G.W. Bush advocated a more direct relationship between poverty and terrorism. In his post 9/11 *New York Times* op-ed, he asserted that, although poverty does not create terrorists, a combination of poverty, oppression and corruption leads toward vulnerability to terrorist attacks (cited in Krueger et al. 2003). Azam and Delacroix (2006) suggest that political instability and the supply of terrorist events are jointly determined. They also claim the existence of omitted variable bias in research concerning foreign aid and conflict. From a macro standpoint, several researchers have suggested that GDP, national income and/or foreign assistance is negatively correlated with terrorist activities (Bloomberg et al. 2004, Li 2005, Crain and Crain 2006, Basuuchoudhary et al. 2007).

There has been a strong opposition in academia to considering terrorism as the root cause of poverty and/or inequality (Kruger et al. 2003, Abadie 2006, Azam 1995, Azam et al. 2002, 2004, Rusell et al. 1983). Kruger et al. (2003) examined data from events and people from the West Bank and Gaza Strip and discovered no relationship between terrorism and poverty. Krueger and Laitin (2003) and Piazza (2004) analyzed terrorism data from international events and were unable to find any evidence of poverty in violence. Evidently, poverty does not even increase the risk of conflict in developing economies (Collier et al. 2004). Abadie (2006) suggests not inequality but political freedom may be the root cause of terrorism. Bueno de Mesquita (2005) uses forecasting

methods to claim that poverty cannot be a predictor for conflict. Russell (1983) analyzed data on terrorists, which demonstrated that they are not uneducated and poor. However, recently, Azam et al. (2004, 2003 and 2006) have advocated education or lack thereof as a significant variable in the increase of conflict.

4.3 Foreign Aid and Conflict

One of the main critiques of the existing research on this issue is that most of the studies consider only international terrorism data. One of the critical assumptions of these examinations appears to be that foreign aid is only provided to prevent international terrorism. However, according to the United Nations, World Bank or even USAID, assistance is provided to regions to eradicate poverty and domestic terrorism. Recent UN, World Bank and MCA mandates have been quite vocal in advocating transparency and accountability for host countries. The World Bank mandate claimed “greater national ownership of development programs ...” (World Bank 2001). These organizations have allocated more power to the host countries and decided to provide additional assistance to countries with good governance. Dollar and Burnside (2001) supported this policy, claiming that foreign assistance is successful only in countries with good policies. However, still the donors’ interest level in mitigating terrorism remains clear (Berthelemy 2006, Berthelemy and Tichit 2004, Fleck and Kilby 2006, Frey 2007, Russell et al. 1983). Both of these researchers show that donors are guided by self-interest, potential commercial relationships and imports and exports. Recent applications by researchers and policy makers have also implied that foreign assistance is provided to counter terrorism (Azam et al. 2006).

The rest of this chapter discusses the scope, underlying mechanism of foreign aid concerning terrorism and an empirical causal model of conflict. The theoretical model explores the market and incentives for foreign assistance in the conflict-laden areas. Instead of examining isolated events of (international) terrorist events, violent events from all over the world are considered, along with total foreign aid and socio-economic indicators.

4.4 The Model

An interaction between donors and aid-receiving conflict-prone developing countries is proposed in the following model. The donor is assumed to be a multilateral organization, such as the World Bank, the Asian Development Bank or a bilateral donor agency such as the United States Agency for International Development (USAID). The aid-receiving country is assumed to be a developing country that has a recent history of violence or conflict. Previous theoretical models of conflict (Azam et al. 2003, 2010) consider one donor entity and several recipient countries. This model considers a single donor and recipient country. Most contemporary models also presume that aid is provided to stop terrorist attacks towards the donor countries (entities). This proposition assumes that aid is disbursed to the recipient countries to decrease intra-country and international violence. It has already been well documented in the literature that civil wars and intra-country conflicts instigate crime, diseases, food insecurity, terrorism and poverty. More importantly, even intra-country conflict and civil war have spillover effects, which hinder the progress of neighboring nations (Collier 2007). Hence, for all practical purposes, a donor entity intends to reduce intra-country conflict in order to

reduce poverty and ensure prosperity. Further, only by reducing intra-country conflict, can donors decrease international terrorism.

Due to previously discussed mandates, many donor entities let the receivers decide and design specific plans for aid execution. Furthermore, new sanctions and policies (Paris Declaration of the United Nations) designed by aid entities established assistance strategies that provide more responsibility to recipient countries. Hence, to be realistic, it is assumed that the recipient nation chooses and designs the programs to counter violence and terrorism. The donor entities decide the amount of aid and specify the broader purpose, scope and implication of the assistance. Hence, a domestic social planner often has the authority to use the contributions of donor entities in various economic sectors (including using it for his own welfare) that may not affect violence.

The framework is defined using the following specification. Denote V as the donor's welfare function and W is the recipient nation's welfare function. The donor's welfare function V is defined by the level of violence and (T) is the total amount of aid delivered. Because the donor's goal is to decrease violence, the donor's welfare $V(T)$ is decreasing with respect to violence. The recipient's welfare function (W) is defined by the total amount of aid it obtains and the level of violence and conflict in the country. The recipient (government) wants to increase the total amount of aid received; its welfare is convex and increasing with respect to obtained aid. The recipient (government) also incurs financial, political and social losses due to increased violence and terrorism. Hence, the recipient's (government) welfare decreases with respect to violence and terrorism. Assume that the receiver incurs an increasing and convex cost

$C(T)$ to reduce violence and terrorism. The donor chooses the amount of aid to be disbursed to the recipient country. The recipient chooses the amount of effort to be exerted to reduce violence and terrorism. The donor organization chooses the amount of aid with the aim of maximizing:

Donor's Objective Function:

$$\text{Where } \begin{matrix} V'(T) < 0 \\ V''(T) < 0 \end{matrix} \quad \begin{matrix} \text{MAX} \\ \{A\} \end{matrix} V(T) - A \quad (4.1)$$

$T = T^*$ is chosen by the Receiver

The recipient (government) chooses the level of effort and program design to counter violent activities.

$$\begin{matrix} \text{MAX} \\ \{T\} \end{matrix} W(A, T) - C(T) \quad (4.2)$$

Recipient's Objective Function:

$$\begin{aligned} W_A > 0, W_{AA} > 0, W_T < 0, W_{TT} < 0, \\ W_{AT} = \frac{\partial}{\partial A} \left(\frac{\partial W}{\partial T} \right) > 0 \end{aligned}$$

Where $A = A^*$ is chosen by the Donor

The signs of the first four derivatives have been discussed earlier and are fairly intuitive. Simply, the recipient's welfare strictly increases as aid increases, and it decreases as terrorism decreases. The third effect suggests that as aid and terrorism increase, the welfare for a recipient government also increases. In the previous section, it has been shown that an increase in severe violence enhances foreign attention and aid; hence, when aid and violence both increase, a recipient's (government) welfare (revenue) will increase. Of course, in Afghanistan or Iraq's case, extreme circumstances

of violence by the recipient country's government and other associated organizations were deemed to be a threat to Western democracies and civilization. The threat transpired into foreign military intervention and the incumbent governments were overthrown. The model assumption differs from Azam et al.'s (2003, 2010) assumption that foreign aid is disbursed to reduce attacks on Western democracies from a conflict-prone nation. The assumptions of the present propositions are that that foreign aid is distributed to reduce a nation's internal conflict and violence.

The aid contract and policies are supposed to specify the amount of effort exerted by the recipient country. Under current conditions, the recipient (government) has to design and delegate specific programs that would reduce the terrorism. Due to its ownership and influence in administering assistance money, the recipient government may not choose to spend all the money to control violence. The host government or its officials may simply choose to keep aid funds in the state treasury and incur benefit from the money. Since this assistance is not the tax payers' money, the host government does not have to answer to the citizens. The timeline of the actions of the recipient government is rather simple. 1. The donor offers the aid to the recipient country. 2. Simultaneously, the recipient government undertakes projects that would eradicate conflict; the donor cannot observe all the actions or projects undertaken by the host government 3. Due to actions of the donor and receiver, the aid projects are executed. The intention of the model is to discover the effects of foreign aid on conflict and violence from the perspective of recipient and donor entity. The best response functions can be derived from the first order conditions.

The first order conditions are:

For the donor:

$$\frac{\partial V(T^*)}{\partial T^*} \cdot \frac{\partial T^*}{\partial A} - 1 = 0 \quad (4.3)$$

This FOC yields $T^*=T(A^*)$ {*Reaction Function*}

For the recipient:

$$\frac{\partial W(A^*, T^*)}{\partial T} + \frac{\partial W(A^*, T^*)}{\partial A^*} \cdot \frac{\partial A^*}{\partial T} - \frac{\partial C(T^*)}{\partial T} = 0 \quad (4.4)$$

From the donors first order condition, the recipient's best response function is

derived.
$$\frac{\partial T}{\partial A} = \frac{1}{\frac{\partial V}{\partial T}} \Rightarrow \frac{\partial A}{\partial T} = \frac{\partial V}{\partial T} < 0 \quad (4.5)$$

Equation 4.5 implies that the donor provides foreign assistance to reduce terrorism and conflict. As terrorism decreases, the donor disburses more aid. The result is intuitive and actually supports the policies of wealthy nations and the international organizations. As the literature and policy review suggests, policy makers are continuing to adopt this strategy more widely and confidently.

From the recipients first order condition, the donor's best response function can be obtained.

$$\frac{\partial A}{\partial T} = \frac{C'(T)}{W_A} - \frac{W_T}{W_A} > 0 \quad (4.6)$$

The recipient decreases effort to reduce the cost of controlling terrorism, thereby exerting less effort to lessen terrorism to obtain more foreign assistance. Intuition suggests that if the recipient (government) does not have any terrorism or conflict in the

host country, then it will lose all foreign assistance. This model would have the same implications on any other variable, such as poverty or education, if it was considered in place of terrorism and conflict.

The underlying argument of this proposition is that, since the donor(s) want to eradicate terrorism and violence, they provide aid to reduce violence to a conflict-prone nation (with increasing levels of aid as terrorism decreases). In the absence of the donor's direct supervision and execution by the donor, the recipient country exerts less effort to accomplish the perceived objectives. One of the critical yet silent assumptions of this model is that the host government is affected by a certain level of incompetency or corruption. This assumption is supported by the Freedom House Index database, which shows that almost all of the developing (conflict-prone) nations lie in the last tier of corruption, democracy, freedom of the press and political stability indices. Moreover, through this optimal strategy, the host government will always create a demand for foreign assistance in its country. The reaction functions are illustrated in Figure 4.1. In the first graph, the reaction functions for both the donor and recipients are drawn.

Through these reaction functions, an equilibrium level of assistance is determined for the different levels of violent activities. The second graphical illustration provides the idea of if and how under the current policy stratagems foreign aid influences terrorist activities. The donor reaction function is built on the good intentions of providing a host government with appropriate instruments to eradicate violence. The recipient reacts to donors' policies simultaneously and exerts effort for the development and reduction of violent activities. The decreases in terrorist events increase the host country government's welfare. However, the actions and policies needed to reduce conflict comes with a cost, which decreases the host countries' welfare. If the associated cost is low, the effect will be positive; but on the contrary, if the cost is high, then the effect will be negative. Hence, the graphs suggest that under the current policies, the effect of foreign aid on terrorism/conflict is ambiguous. The reaction functions are illustrated in the figures in the next page:

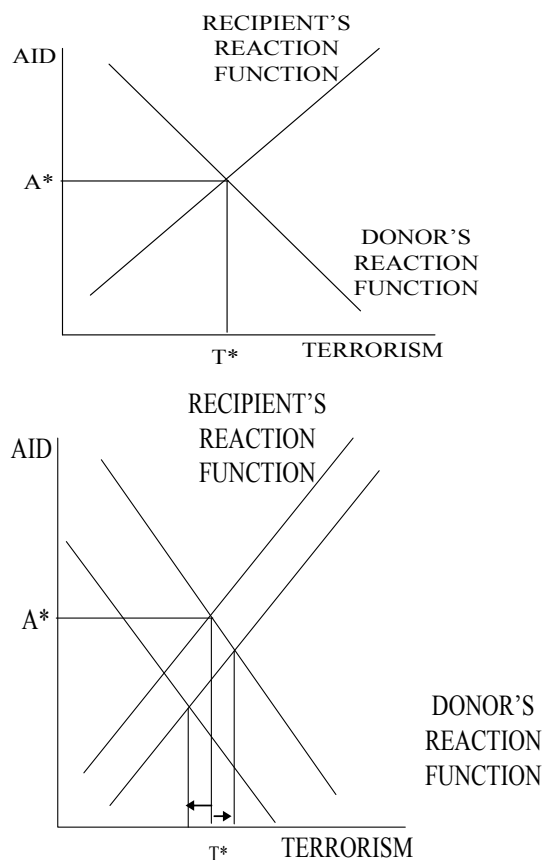


Figure 4.1: The reaction functions show that the effect of terrorism on foreign aid is ambiguous.

4.5 Causality, Philosophical Discussions and Notions

Inductive causation and directed acyclic graphs did not come into prominence in economic sciences until recently. Bessler et al. have used them for forecasting and applied econometric analysis in agriculture. However, inductive causation has not yet been used in the political science or development literature. The results of this analytical method are shown by directional arrows between variables in a chart and are used to

explain the underlying causality among a set of variables. The arrows bear negative or positive signs to show whether the effect of a variable is to reduce or increase the value of another variable in the direction of the arrow. The directions of causality, the strength of the effects and the sign of the effect (positive or negative) are estimated by a system of regression equations. The method is called “directed acyclic graphs” (DAGs).

Directed acyclic graphs are especially useful when there is an endogeneity or identity problem among variables. This occurs for example when variables appear to be interrelated but an independent variable cannot be identified. In most situations, the main research question lies in the interactions and causal flow of the variables, rather than identifying an independent variable. For example, modern macroeconomic theory suggests that inflation and employment are negatively related. However, existing theories do not state the causal structure necessary for policy enactment. If one intends to discover the causal relationships between employment, inflation and GNP growth, choosing the wrong exogenous variable may lead to a spurious analysis. Moreover, for policy enactment and economic development, discovering a causal relationship will be more germane rather than explaining inflation through GNP.

DAGs are beneficial, as they define the notion of causality through manipulation, so that if X causes Y, one can change Y by manipulating X. Granger’s (1980) “causality” predicts, while DAGs provide causal flows. Moreover, the primary criticism of “Granger Causality” remains in its failure to detect latent variables, which can be done through a directed graph analysis. The empirical algorithm and explanation of

causal flow is derived from the “screening-off” phenomena. Pearl (2000) depicts a more rigorous depiction of this concept through d-separation (Pearl, 2000).

Arrows ($X \rightarrow Y$, X is causing Y) are used to specify the causal from the variations. A line ($X - Y$) without an arrow implies that the variables in question are connected through information flow, but a specific causal flow cannot be established between them. Lines with arrowheads are used to represent such flows; the graph $A \rightarrow B$ indicates that the variable A causes B . A line connecting two variables, say $C - D$ indicates that C and D are connected by information flow but we cannot tell if C causes D or vice versa.

A “causal fork” refers to a system where two variables are dictated by the same “causal” variable (Pearl 2000). For three variables, foreign aid, GDP and inequality, a scenario can be considered where foreign aid is a common cause of GDP and inequality, implying $GDP \leftarrow aid \rightarrow inequality$. In this proposition, the unconditional association between GDP and inequality will be non-zero, as both GDP and inequality have a common cause in aid. The common cause aid is “screening off” the association between GDP and inequality. In statistical terms, linear correlation between aid GDP and inequality will be non-zero. However, conditioned upon foreign aid, the partial correlation of GDP and inequality will be zero.

The “screening off” condition may also exist for three variables represented through a “causal chain.” An empirical causal chain may show that poverty causes grievances, which generates conflict; $Poverty \rightarrow Grievance \rightarrow Conflict$. Even though poverty is the root cause in this scenario, grievance is acting as a “screen off” variable to

disguise poverty's effect on the "sink," represented by conflict. In this pseudo-representation, the linear correlation between poverty and conflict will be non-zero. However, if one conditions on the middle variable grievance, partial correlation between poverty and aid will be zero.

An inverted causal fork occurs when two variables affect one particular variable (Pearl 2000 and 1995). Let us consider a simulated DAG structure, $\text{Conflict} \rightarrow \text{Aid} \leftarrow \text{Poverty}$. Here, aid is a common effect of conflict and poverty. In this example, conflict and poverty will have no linear association; however, if we condition upon aid, the partial correlation between poverty and conflict, given aid, will be non-zero. Thus, aid being an effect, can also "screen-off" associations between its common causes.

This notion of "screening-off," associated with common effects, causal chains and common causes, has been explored by mathematicians, computer scientists and philosophers in modern times. But the empirical theory and proposition needed for research in social science has only been developed recently by Pearl and his associates (Pearl, *Causality*, Cambridge UK 2000) and Spirtes, Glymour and Scheines (*Causation, Prediction and Search* Cambridge, MIT Press 2000) and Bessler and Akleman (*AJAE* 1998) have used these theoretical propositions to enrich empirical research methods on finance and information economics. The analyses in this dissertation will be the first attempt to formally use DAGs in political and development economics.

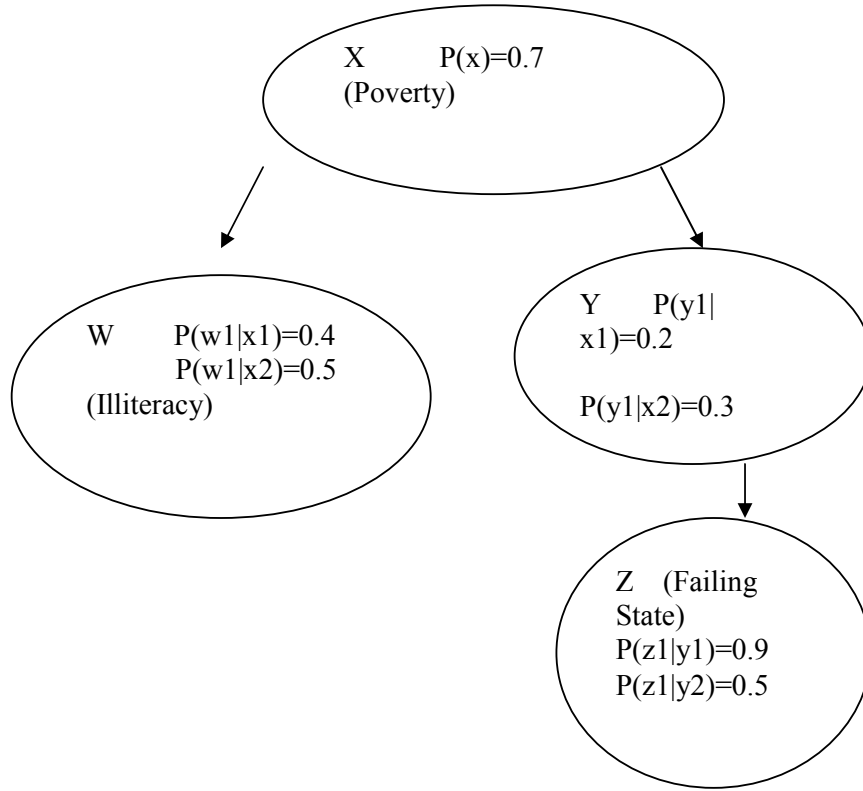


Figure 4.2: Example of a Bayesian Network.

Pearl's (2000) message passing algorithm is intuitive and straightforward. Figure 4.2 shows a Bayesian network in which there are four variables, each of which can only be assigned two possible values ($X \in \{x1, x2\}$). The probabilities of only the first values are shown in the figure to avoid clutter. For the above example, since causal information, in terms of parents exist for each of the n variables studied above, hence the factorization simplifies:

$$P(V_1, V_2, \dots, V_n) = \prod_{j=1}^n P(V_j | pa_j) \quad (4.7)$$

In this example, the notion of conditional independence can also be illustrated. Poverty and a failing state are conditionally independent, given conflict. Learning the value of poverty does not provide additional information about a failing state once conflict is known. Thus, conflict “screens off” poverty from a failing state. Mathematically,

$$P(\text{poverty, failing state} | \text{conflict}) = 0 \text{ but } P(\text{poverty, failing state}) > 0.$$

Suppose that the value of X from Figure 4.2 is known to be x_1 and the values of the other variables are unknown. The values of W, Y, Z will be discovered through the downward transmission of messages. Since the Markov condition requires that each variable is independent of its non-decedents, given its parents, information propagates down the network in this scenario from the parent to child. The process would provide necessary information for the children to update their conditional probabilities. Node X provides a message to node W and Y, who update their conditional probabilities. Then node Y passes a message to node Z, so that it can update its conditional probability. This is illustrated by the following depictions:

$$P(w1|x1)=0.4$$

$$P(y1|x1)=0.2$$

$$P(z1|x1)=P(z1|y1,x1)P(y1|x1)+P(z1|y2,x1)P(y2|x1)$$

$$=P(z1|y1)P(y1|x1)+P(z1|y2)P(y2|x2) \text{ by the Markov condition}$$

$$=.9(.2)+.5(.8)=.58$$

As has been already suggested, there may be a case of latent variables that affect poverty and/or conflict. Greed and grievance are theoretically defined as having affected poverty and causing conflict (Collier 2000, Keen 1998). However, it may be impossible

to come up with an observable perfect proxy for greed or grievance. Two ways of countering the problem are proposed. Suppose we have a causal structure like Figure 4.3.

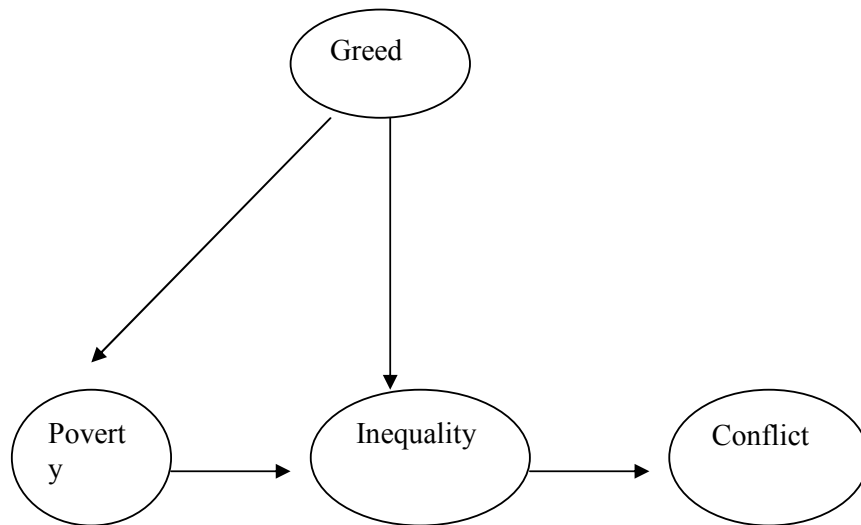


Figure 4.3: Unobservable variable greed is causing both poverty and inequality due to a backdoor path.

Greed is screening off the effect of poverty and inequality towards conflict. Hence, if we have a causal structure as in Figure 4.3, it would not be possible to estimate the effect of poverty and inequality on conflict.

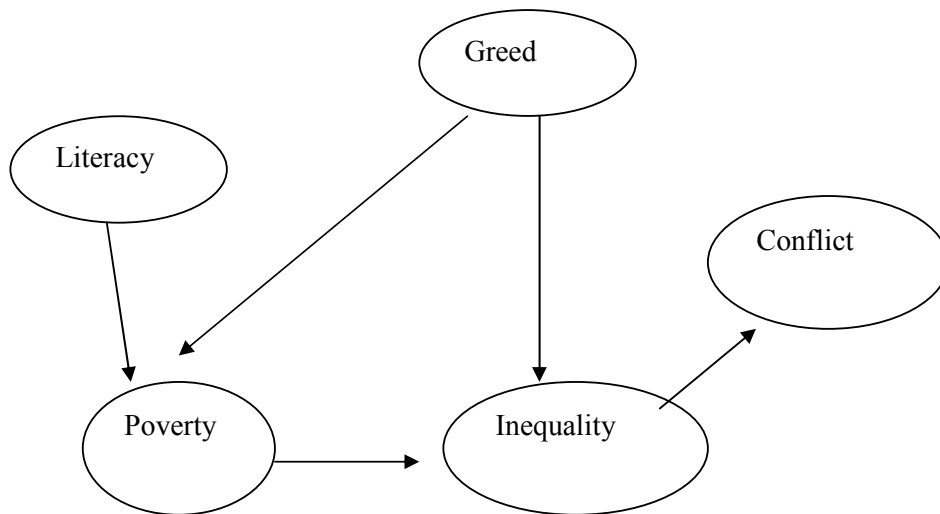


Figure 4.4: Introducing an instrumental variable, literacy.

The instrumental variable “literacy” which has no relation with greed, can be introduced to address this quandary. Figure 4.4 shows that adding this variable opens up a front door path, which will enable examination of the effect of poverty on conflict.

In Figure 4.5, it is shown how a proposed model can allow for latent variables. Poverty – aid indicates either: 1. poverty causes aid; 2. aid causes poverty or both are caused by a latent common cause. The same interpretation applies to the aid and greed edge. The aid → conflict indicates either: 1. aid causes conflict or 2. both are caused by a latent common cause, but in no case does conflict cause aid. In the FCI algorithm, there is room to identify latent variables such as grievances.

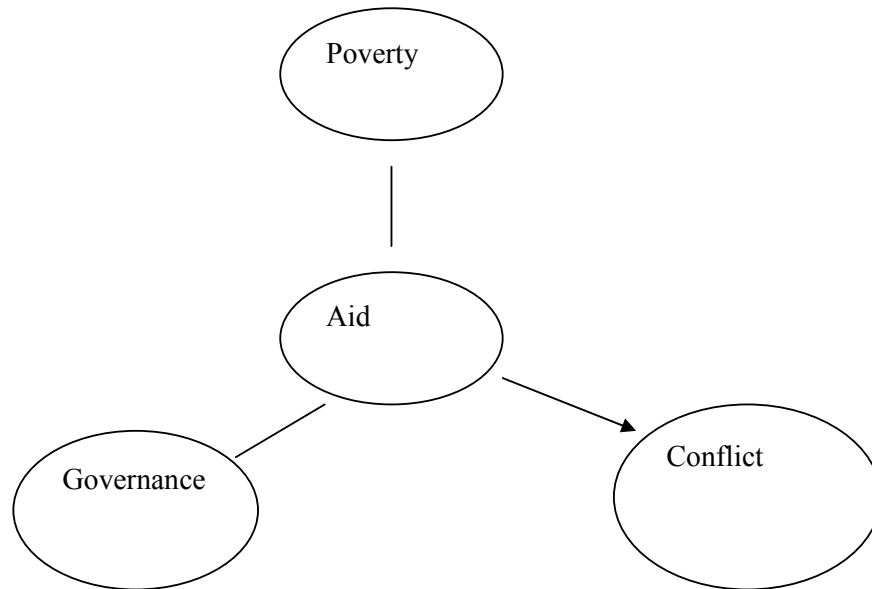


Figure 4.5: Causal pattern of conflict through poverty, greed and aid via the FCI (Fast Causal Inference) algorithm.

4. 6 Variables for Empirical Analysis

As the theoretical thought and introduction suggest, the most important variables in this study are terrorism and non-military financial assistance. The intention is to establish causal chains or structure between these variables either directly or through other socio-economic indicators. Ideally, poverty would be the first socio-economic indicator to consider and linked with violence and foreign assistance. However, data for poverty generates inconsistencies and skepticism for the following reasons. The worldwide common estimate of poverty of “a dollar a day” is biased. A dollar in rural Bihar, India, has much more strength than a dollar in New York City. Since we are

considering a panel data set of all countries around the world, the available datasets would not be consistent in the estimates. More inconsistencies with the poverty data have been discussed in chapter III. Because of the controversial nature of the poverty data and the pertinence of “inequalities” to conflict, “inequality” is deemed to be a better measure. Some researchers have already associated economic inequality with conflict (Cramer 2003, Sriskandarajah 2003, Korf 2006, Dixon 2009, Ferreira 2005). Infant mortality rates are also considered; infant mortality rate represents the number of newborns dying under a year of age divided by the number of live births during the year. This is reported as the number of live newborns dying under one year of age per 1,000 live births.

4.7 Empirical Analysis

The empirical analysis is initiated by considering the basic three variables. In Figure 4.6, the relationship between terrorism, inequality and foreign assistance is examined. Inequality can also be considered as the proxy variable for greed and grievances. Collier et al. (2000, 1998) has already verified that income inequality can be considered a proxy variable for grievances. We consider inequality as a proxy for deprivation and grievances. By employing a Fast Causal Inference Algorithm (FCI) structure, it has been discovered that aid does not have any causal flow towards causing or reducing conflict. On the contrary, terrorism and violent events cause the disbursement of foreign aid. However, no causal relationship or structure between inequality and violence is discovered.

Income inequality, however, is a root cause for aid. The FCI algorithm also shows the existence of latent variables in the causal structures of inequality, aid and terrorism. Inequality may cause higher levels of poverty, corrupt governance, grievances, political instability, lack of education in the population, low gross capital formulation and stagnant economic prosperity. All these variables may have causal relationships with inequality, which also causes foreign assistance. Terrorist activities

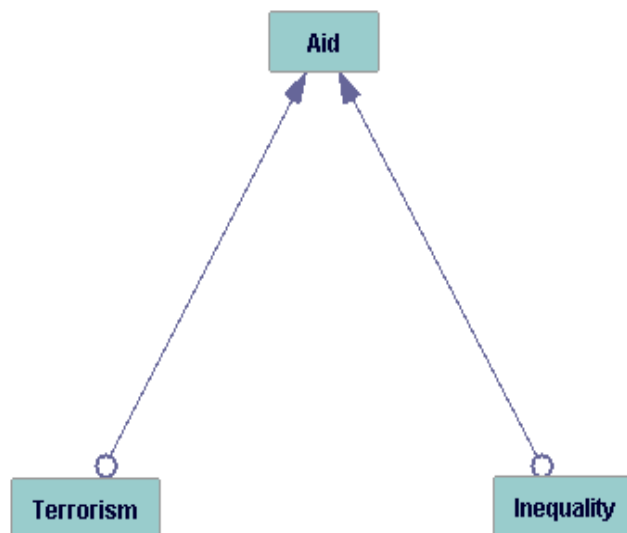


Figure 4.6: FCI algorithm portraying the causal structures of terrorism, inequality and foreign assistance.

can also be related to all these variables. The rule of governance, greed and social peace may also be latent variables related to conflict. The Figure 4.6 shows that these latent variables, along with terrorism, are the root cause of aid. It has been found that foreign aid does not affect inequality nor any of the latent variables associated with inequality.

To investigate the relationship further, a Greedy Efficient Search (GES) algorithm is employed in Figure 4.7. It has been found that terrorism or violence is positively related with foreign assistance. An increase in violent conflict causes foreign donors to become more involved in a country's development. Non-military aid expenditure increases due to terrorist events. Income inequality affects foreign assistance negatively; when inequality increases, foreign assistance decreases. This discovery verifies the donor organization's mandates of providing foreign assistance to countries with good policies. The causal arrow shows that the information flow is towards foreign assistance. From Figure 4.7, it can be concluded that countries obtain a minimum threshold level of equality to acquire more foreign assistance. From Figure 4.6, it can be concluded that countries obtain a minimum threshold level of equality to acquire more foreign assistance. However, foreign assistance itself does not help in mitigating unequal income distribution.

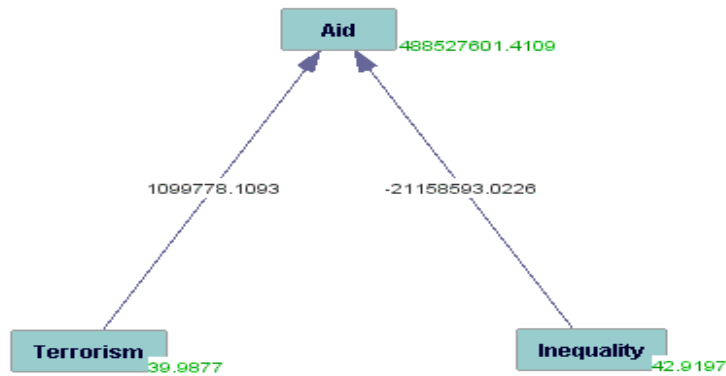


Figure 4.7: GES algorithm depicting the causal structures of terrorism, Inequality and foreign assistance. The numbers beside the variables are the associated coefficients. The sign and number of the estimated beta is provided in between the arrows.

Classical economists have claimed that income inequality is beneficial for economic prosperity (Kaldor 1955, Keynes 1920, Kuznets 1955). However, neo-classical economists have since asserted that in an imperfect credit system, income inequality results in under investment, aggregate income and human capital development (Abadie and Rodrik 1994, Banerjee 2003, 2006, Banerjee and Newman 1993). Further recent research has also claimed that income inequality may also create political instability (Galor et al. 2006, 2008, 2009, 2004, Alesina and Weder 2000, Oded and Zeira 1993 and 1988). Foreign assistance strategist and scholar Easterly (2007) has reaffirmed income equality hinders the economic progress and education for the citizens of a society.

The above empirical results, along with the conclusions of the other researchers cited, suggest that the current foreign aid policies and implementation systems are fragile and counterintuitive. Developing nations with higher inequality consistently show slower economic growth and prosperity. Intuitively, regions with higher inequality need more attention from development agencies. However, due to mandates by agencies and developed countries, nations with higher inequalities are deemed unfit to receive aid. Discovery regarding greed and deprivation (inequality) is rather alarming, because it appears that donors are avoiding the regions that have more deprived people. The possible argument behind this attitude may be that donors do not desire to provide their money in areas where the assistance has less probability of reaching the poor.

Unfortunately, foreign assistance as it is implemented now, does not have any causal affect on inequality as well. Unlike, some other researchers (Azam et al. 2003, Lischer 2003) the DAGs here do not show any direct causal relationship that can suggest foreign aid can increase terrorist events. On the contrary, the results support the theoretical model that the effect on foreign assistance in reducing terrorist activity is ambiguous.

To explore more of this issue, the growth of gross domestic product (GDP) is added to the equation and the results are illustrated in Figure 4.8. GDP growth is considered instead of absolute GDP, because the intention is to learn whether a region's growth is effected by the aforementioned variables. The discovery here agrees with Kuznet's (1955) findings, that economic growth causes income disparity. And, income disparity causes a lower amount of foreign assistance for the developing nations.

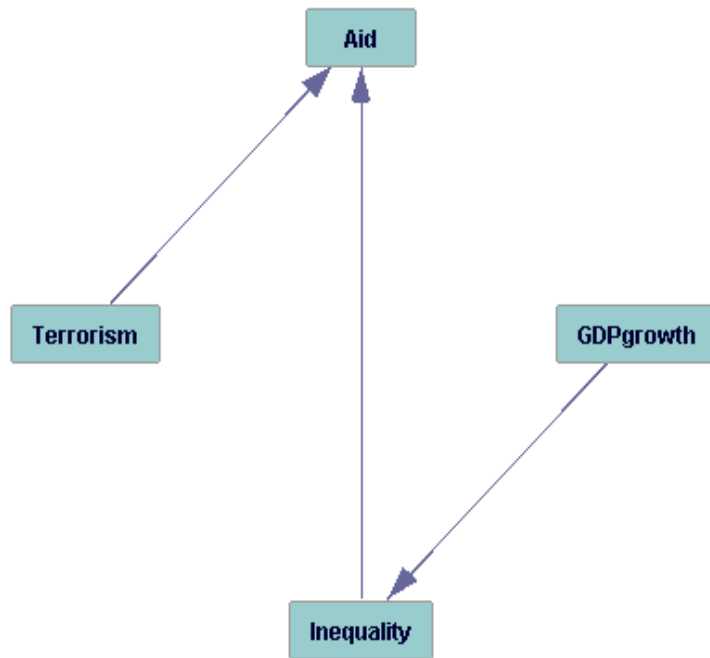


Figure 4.8: GES algorithm depicting the causal structures of terrorism, inequality, foreign assistance and GDP growth.

It appears that foreign aid is provided to countries with lower economic growth albeit without the intentions of the donors. However, aid does not appear to have any causal relationship with increasing a country's GDP growth. Easterly (2007) showed that even for a prosperous and generous aid-receiving country, such as South Korea, aid had a negative relationship with GDP growth. This prognosis does not entirely support Easterly's findings; however, his statement that aid does not assist in a nation's economic growth is not rejected.

Terrorism and violence is a stand alone variable that raises the amount of foreign assistance but has no causal relationship with GDP growth and/or inequality. This discovery also supports other researchers (Abadie 2004, Mesquita 2005, Krueger 2003, Piazza 2004) that poverty is not a root cause of terrorism.

To further investigate the relationship between poverty (measure of well being), aid and terrorist events, variables such as life expectancy, infant mortality and rate of immunization are introduced into the existing model. Reducing infant mortality is one of the cardinal strategies in millennium development goals. Child mortality has been generally agreed upon as a suitable proxy variable for poverty. Many social science researchers have already used and verified infant mortality as a genuine proxy for poverty (Center for International Earth Science Information Network 2005, Pridemore 2007). Life expectancy is also used in various Human Development Indices that measures well-being, and it is also considered to be a proxy for poverty. Childhood immunizations can reveal economic and social knowledge as well as government initiative in rural areas. It can also assist in understanding the education levels of the underprivileged. Education (knowledge) has already been claimed to be one of the key variables affecting terrorism (Krueger 2003; Azam et al. 2005). In Figure 4.9, the DAG representation of these six variables is shown using a GES algorithm.

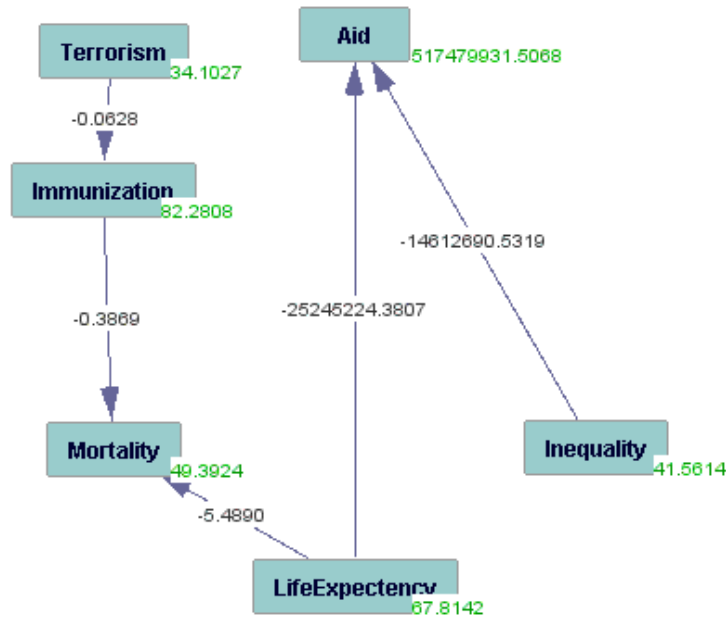


Figure 4.9: GES algorithm showing the causal structures of terrorism, inequality, foreign assistance, infant mortality, life expectancy and children immunization rates.

The results depict an inverted causal fork, where life expectancy (well being) and immunization are the root causes of infant mortality. These two variables represent government initiative and access to medication and knowledge. Also, an increase in life expectancy in households increases the availability of family members' time and experience to be applied to infant care. A decrease in life expectancy and immunization rates increases infant mortality. Terrorism has a negative influence on immunization

rates, implying that an increase in terrorist activities would result in the reduction of knowledge and government initiatives and a reduction in citizens' access to government health facilities. However, immunization is acting as a sink and is screening off its association with infant mortality. Terrorist activities appear to be a root cause of poverty and suffering of the underprivileged. Since the associated sign with infant mortality is negative, we can conclude that terrorism increases poverty (infant mortality). However, we do not discover any relationship that suggests poverty, government initiatives, inequality or any socio-economic indicator influences terrorist activities. Hence, the results refute the proposition that a lack of knowledge, poverty and government initiative causes terrorism. Income inequality is again found to be related to foreign assistance. These findings partially support the Collier et al. (1998, 2000) Bigombe 2000 hypotheses that grievances do not increase or affect the probability of conflict. According to these results, disparity in earnings, which can cause grievances and deprivation, is not the root cause of violent terrorist activities.

4.8 Conclusion and Recommendations

Researchers and policy makers are divided in their opinion about the causes and effects of violence and terrorism, foreign aid and well being. The assumptions of the theoretical model of this chapter are based on the mandates and policies of the donor countries. The general model shows that, due to mandates and certain perception, the effect of foreign assistance on terrorism would be ambiguous. The theoretical propositions do not impugn the intentions of the donor countries and agencies, which is to provide assistance to decrease both in-country and international violence and terrorist

activities. However, due to the disbursement mechanisms and host-country conditions, aid results in a decrease in effort by recipient countries to reduce violence and terrorism. The empirical models support this finding and provide other valuable insights. Terrorism and violence negatively affect the measures of living standards and well being; however, no causal relationship is established between income inequality and terrorism. Furthermore, financial assistance increases the levels of terrorism, but a rise in violent activities does not reduce assistance from donor entities. It is concluded that foreign assistance policies need to re-evaluated.

CHAPTER V

CAN WORLD PEACE BE BUILT ON EMPTY STOMACHS?

5.1 Introduction

During the last 10 years, the total amount of funds (both defense and development) spent in Afghanistan was 1300 billion USD (OECD 2010 and Belasco 2006). The total amount of agricultural funding allocated in this period in Afghanistan was 1.2 billion USD. It is apparent that the donor countries stratagem of promoting peace in Afghanistan does not include rapid agricultural reform and prosperity. Foreign assistance and spending policies have been criticized by many development economists, such as Easterly (2004, 2007), Moyo (2009), Azam (2004, 2006), Svensson (2000) and Sachs (2006). While the jury is still out on the efficiencies of foreign assistance and intervention as a whole, criticism and advocacy for the all the major types of assistance have been an ongoing debate, too. Defense spending and assistance for governance lead the way in financial contributions towards the developing world. Analysis performed in this chapter show that health care, education and agricultural development are relatively underfunded. It appears that the trend in the aid world is to reduce aid in these sectors and increase aid in other sectors, such as government administration and economic development. Agricultural and food security assistance comprises less than 2% of the total aid allocated to developing countries. This is an extremely low amount, considering that most of the developing countries have agrarian economies with a high proportion of hungry citizens. Data collected from the Global Terrorism Database (GTD) and the Uppsala University database demonstrate that conflict has risen about 20% in the last

year. The number of hungry people in the world has also reached a historic high at 1.02 billion people, a 100 million increase from 2009 (FAO 2010). Hence, it can be safely concluded that at least some components of foreign assistance are not accomplishing their intended objectives.

Most scholars and policy analysts agree that foreign intervention, both military and civilian, is provided to accomplish five main objectives: eradicating poverty and enhancing livelihoods of the impoverished, developing countries so that they can achieve equal terms of trade, creating a political hegemony, maintaining a sound diplomatic relationship and ensuring international peace and harmony. The last two objectives are directly related to the mitigation of conflict and violence. Officially, the practice of foreign development commenced with the Marshall Plan. The quintessential idea of the plan was to rescue several European countries from the influence and hegemony of Communism, as well as ensuring no major war/conflict scenarios in Europe. At the present time, diplomatic and political scenarios have become far more complex, yet one of the central ideas remains keeping the developing nations out of conflict.

A comparative quantitative analysis comprising all economic sectors and their effects on conflict could provide an understanding of the efficiencies of assistance given to each different sector. The intention of this chapter is to contribute to the foreign and policy reform debates and assert the need for agricultural assistance in conflict-prone nations. Three primary hypotheses are explored in this chapter. First, official development assistance is much less than spending through the armed forces. Second,

assistance for agricultural development and food security has been grossly underfunded. Third, the successful implementation and allocation of agriculture and food security assistance can reduce conflict.

5.2 Review of Sectoral Aid

Morgenthau (1962) was one of the first Western philosophers to evaluate foreign assistance and intervention after the Marshall Plan. He was apprehensive about foreign assistance and its repercussions. Morgenthau claims there are six types of foreign aid: Humanitarian assistance, subsistence aid, military aid, bribery costs, prestige aid and aid for economic development. He claims only humanitarian assistance, such as medical and agricultural aid, may benefit host countries. He also cautions policy makers about spending too many resources on government administration and civil society enhancement in an effort to promote Western political values in developing countries. Some recent politicians, lawmakers and development specialists have emphasized the need for good governance and civil society for rebuilding in conflict-prone nations. Collier (2007) claimed more attention should be devoted to building good governance in smaller, fragile nations. Burnside and Dollar (2000) discovered that aid is only successful in countries with good policies and governance. Most of the responses to rebuilt conflict zones have been to invest in defense expenditures and governance. Even scholars, such as Collier (2007), have argued that military intervention may be necessary to countries that are conflict-prone and have very weak governance. A good governing body can assist in building a better society. Since benign military intervention is directly associated with governance, aid for government administration has been increasing.

Support from scholars has also been a deciding factor in strengthening the increases in aid given for government administration and civil society.

Azam et al. (2003, 2010, 2007) has been very persuasive in advocating for increased foreign aid for education. They have conjectured that an increase in foreign aid would decrease terrorist attacks. However, they have also professed that military intervention would not decrease the threat of terrorist. Following Morgenthau, they also imply that aid for government administrations to adopt a Western philosophy of politics may not be very beneficial in blunting threats from radical and impoverished societies. Sachs (2005), along with the MDGs (millennium development goals), has emphasized aid for basic health care. Foreign aid for economic socio-development has also been promoted by policy makers and scholars, alike. Kanbur (2007) and Easterly (2007) have stressed that it is imperative that the impoverished countries of Africa attain sustainable economic development and debt relief.

Compared to the sectors mentioned above, agricultural development and food security have been under harsher scrutiny (Feyzioglu 1998). Both disbursement and implementation processes have been severely criticized. Food security aid has been labeled as “dumping” by several scholars, and has furthermore been deemed unnecessary. Additionally, scholars, such as Moyo (2009), criticize aid for agriculture and food security. She, like other philosophers, claim that the benevolent act of distributing food in developing nations from the developed ones can have detrimental effects. Moyo proposes several reforms in food aid and country purchase programs. In the last few years, several failures in agricultural aid have been documented in relevant

literature. Keen (1994) projects the political and bureaucratic inefficiencies of food security aid and relief in Sudan. While Keen's work illustrates the incapability of the food aid process, he also describes the devastating famine in Southern Sudan due to conflict and political instabilities. Waal (1989, 1994) and Stewart (1993) also criticized the methods of food and agricultural assistance, claiming that they may prolong conflict and increase inequality. Barrett (2001) claims that food aid and security (monetization) programs are not beneficial to enhancing the food safety and security of an impoverished region.

The criticism of food and agricultural aid in a conflict-prone impoverished region is counterintuitive. The denunciation is chiefly directed towards the implementation process, rather than to food and agricultural policies (Soysa et al. 1999). The support and evidence for agricultural development and food security has also been documented. Soysa et al. (1999) claim that agricultural development is the most important facet for development, as it reduces poverty and mitigates violence. According to their research, poor agricultural conditions hinder socio-economic progression and sustainable peace. Agricultural development can impart peace, especially in those societies suffering severe food shortages and those that are vulnerable to conflict (Messer et al. 1998). Keen (1994) also accepts the idea that agricultural aid can successfully mitigate hunger, thereby mitigating conflict.

5.3 Data Sources and Variables

The primary variables of interest in this chapter are intra- and inter-country conflict and violence. Data on international conflict from 1947-2007 is available through

the Uppsala University database. This data is labeled as international conflict, because in each of the violent events, at least two parties are involved. The data was coded, considering the intensity of the conflicts. A higher fatality rate was assigned a larger score. The intra-country violence data was collected and coded from the University of Maryland, Global Terrorism Database. They report incidents of assassination, hostage-taking, armed and unarmed assault, bombing, explosion, attack on infrastructure and hijacking in all countries from 1970 to 2007. The total number of incidents every year in each country was recorded in the sorted data set. Sectoral aid data for agricultural development, civil society, government administration, food aid and food security programs, economic development and planning, basic health care and educational development and infrastructure building was collected from the OECD database. Unfortunately, the aggregate sectoral aid data at the country level is available only from 2002. Yearly data for each aid receiving country was recorded. The aggregate foreign assistance data that reflects the combination of loans, grants, foreign direct investment and assistance were collected from 1960 through the OECD database. The poverty data was generated through World Bank's "povcal" software created by Chen and Ravallion. The income inequality data consists of a merger of datasets provided by the United Nations and the World Bank. Infant mortality rates are a merger of databases from the World Bank, the United Nations and the World Health Organization. Data on gross capital formulation, immunization rates and life expectancy was collected from the World Bank's development indicators database.

5.4 Data Analysis

The analysis is initiated with the help of graphical illustrations and discussions on disbursed sectoral foreign aid. Figure 5.1 depicts the total foreign assistance disbursed for economic infrastructure, government and civil society, education, health, agricultural forestry and fishing and food aid and security from 1971 to 2001. Economic infrastructure and development have been consistently allocated the highest amount of money. Starting in 1987, the amount of assistance for agriculture, forestry and fishing has declined rapidly, even though most of the nations receiving aid have agrarian economies.

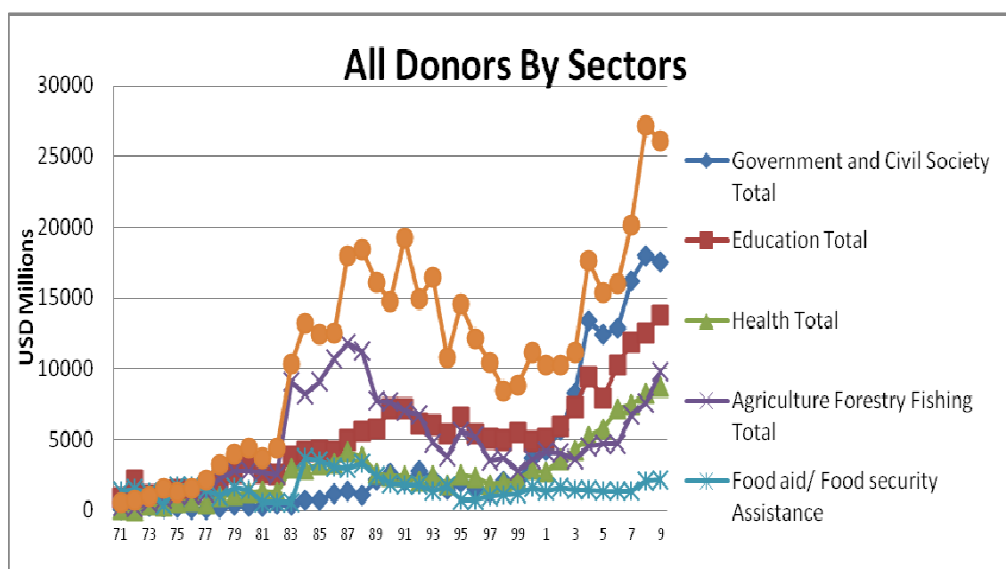


Figure 5.1: Time trends of total assistance from all donors disbursed by sector, 1970-2009. Source: World Bank, OECD.

Ever since aid for rural development decreased (from the late 1980s through the early 1990s) both international- and intra-country conflict have markedly increased. Judging by the large investment in aid for government administration shown in Figure 5.1 above, it appears that aid for government administration is deemed an important way to eradicate violence and conflict and enhance the socio-economic status of the impoverished in the underdeveloped world. Funds for government administration and civil society have been increasing since 1999. This shift can largely be attributed to the realization by policy makers that foreign aid can only be beneficial for countries with good governance. Hence, foreign aid allocators decided to spend significant amounts of funds to create good governance in conflict-prone nations.

Scholars (Azam et al. 2004, 2003) have also argued that assistance for education would essentially convey the knowledge of the futilities of war, violence and conflict. Increased aid for education can also lead to better livelihoods of the poor. In accordance with those recommendations, aid for education has also significantly increased over time. Aid for health care has been neglected compared to the other sectors, though it has gradually increased since the turn of the millennium. Millennium development goals have strongly supported health care assistance. Economic infrastructure and services have obtained the greatest share of assistance. Middle and upper income countries with “good governance,” such as Brazil and the Philippines, receive most of their assistance in the form of economic infrastructure and services. Aid for food security and food safety historically has been the most neglected and the lowest form of aid.

Country-wise data for foreign assistance allocated has only been available since the year 2002. USA's Department of Defense (DOD) expenses in conflict-prone Afghanistan is shown in Figure 5.2. This figure shows that the USDOD alone spends several hundred-fold, far more than the total money spent by all donors for development assistance for Afghanistan. According to the Congressional Research Service (CRS) report from 2001 to 2011, the DOD has allocated \$336 billion for Afghanistan (Belasco 2011). It is estimated that for the last ten years, the DOD alone has spent more than \$92 million a day in Afghanistan. Yet, the average volume of international aid provided by all donors since 2001 was calculated to be only \$7.9 million per day.

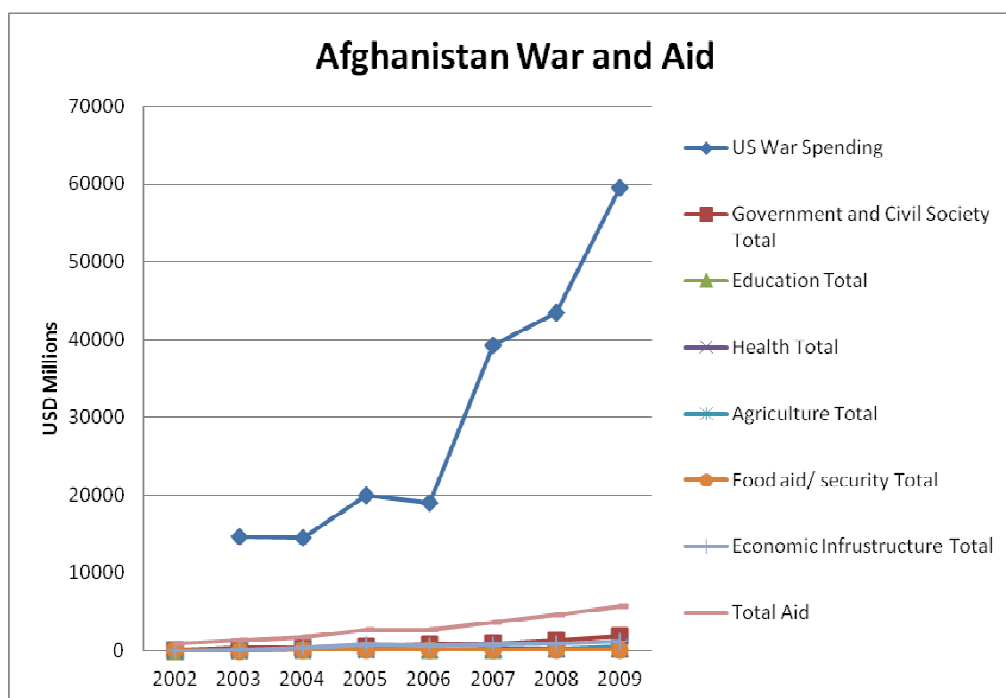


Figure 5.2: Time trend graph of foreign assistance and DOD spending in Afghanistan. Source: World Bank, OECD DOD.

Waldman (2008) reports that DOD spending comprises only one-third of the total military expense on Afghanistan. Although US President Barack Obama declared in 2010 the “War on Terror is over,” Figure 5.2 shows that until 2009, USDOD spending was increasing exponentially; whereas, official development assistance (ODA) was increasing rather slowly and monotonically. Aid to all non-military sectors is insignificant compared to the expenditure of USDOD spending. In 2008, the DOD stated “shaping the civil situation” is equally significant to their mission as is “winning battles” on foreign soil (US Military Manual 2008, cited from the *International Herald Tribune*). Recent efforts by the USDOD for development in Africa, Iraq and Afghanistan imply this philosophy. In each of these missions, scientists, social workers and medical doctors have worked with the Armed Forces. The percentage of US foreign assistance disbursed by the Pentagon increased from 6% in 2002 to 22% in 2005 (Center for Global Development 2008). The USDOD Task Force for Business and Stability Operations (TFBSO) has been created to “reduce violence, enhance stability, and restore economic normalcy” in conflict-prone areas with the assistance of military aid. The necessity of enhancing non-military assistance appears to be universally agreed upon.

Figure 5.3 reveals that the total ODA is less than 10% of the financial commitments of the DOD to Afghanistan. Contrary to the general belief that aid provided to Afghanistan is adequate compared to other conflict-laden, impoverished entities, Waldman (2008) reports that since 2001, Afghanistan received \$57 per capita aid, while Bosnia and East Timor, after their intervention, received \$679 and \$233 per capita, respectively. The OECD data shows that since 1999, Afghanistan has received

per capita aid of \$92, whereas conflict-laden Serbia and Bosnia received per capita aid of \$323 and \$313, respectively. Even strategically located non-conflict prone nations, such as Chile and Turkey, received per capita aid of \$204 and \$124, respectively, over the same period.

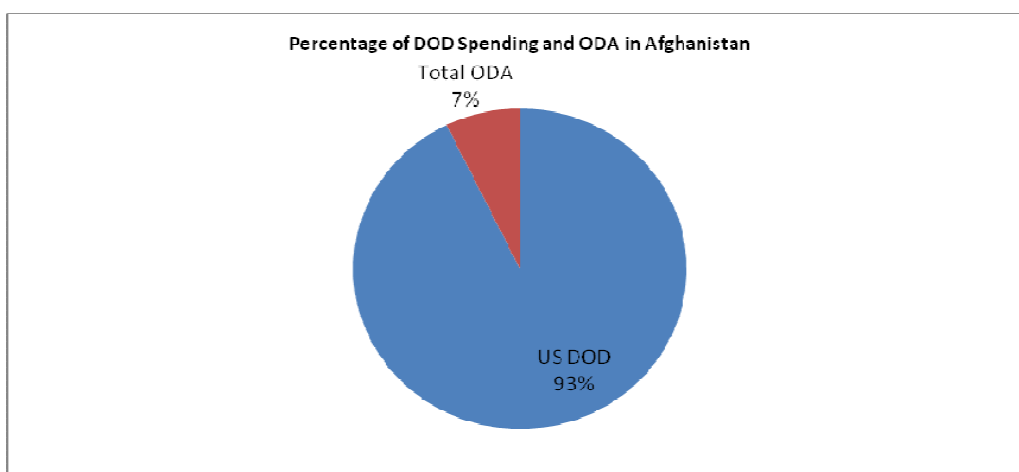


Figure 5.3: Percentage of DOD and ODA spending for development assistance in Afghanistan from 2001 to 2007. Source: World Bank, OECD, DOD.

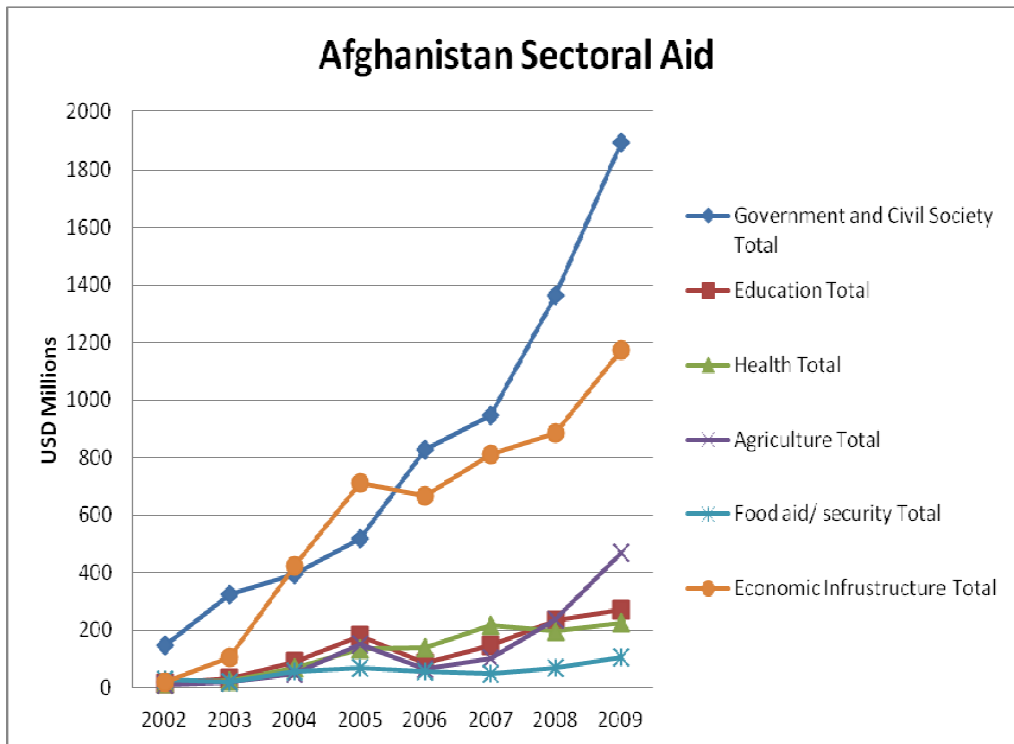


Figure 5.4: Sectoral aid trends in Afghanistan from 2002-2007. Source: World Bank, OECD DOD.

Figure 5.4 demonstrates the trend of sectoral aid in Afghanistan from 2002 to 2007. Aid for government and civil society administration has consistently been increasing and receives far more attention than any other sector. Since governance and civil society have been identified as very weak in Afghanistan, donors are inclined to invest more funds to strengthen civil society. In a comprehensive report, Oxfam International policy advisor Waldman (2008) claimed that Afghanistan is underfunded by international agencies and governments. He also claims that neither is the allocated aid to Afghanistan achieving its perceived goals. Weak governance, inadequate government human capacity, lack of infrastructure and widespread corruption in

Afghanistan have been argued to be the prime reasons for this inadequacy (Waltman 2008).

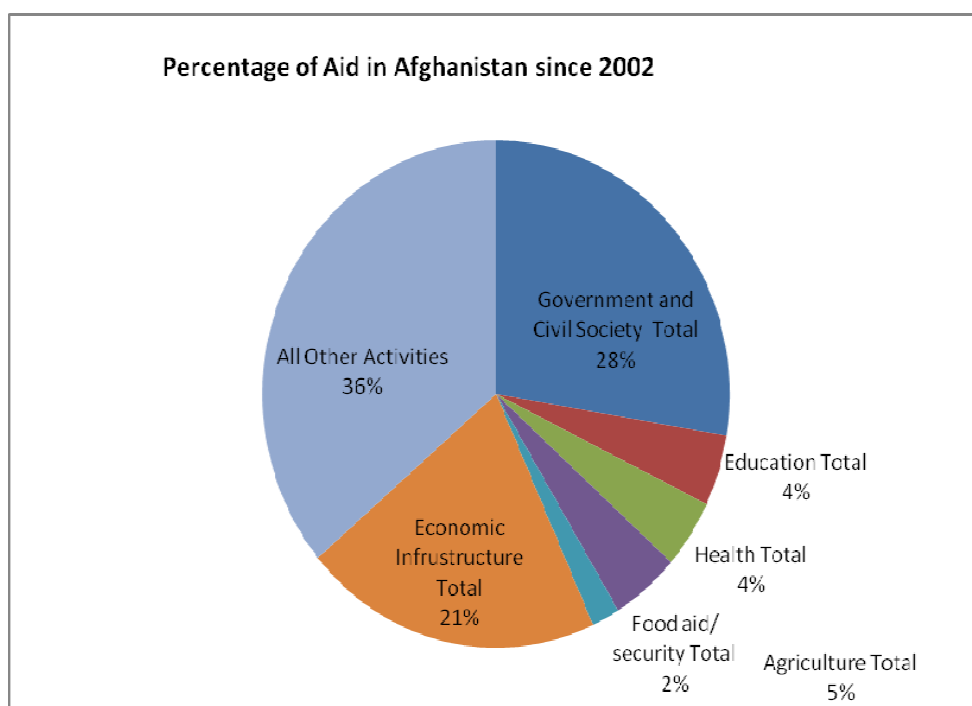


Figure 5.5: Aid to Afghanistan by sector, 2002-2009. Source: World Bank, OECD.

Both economic infrastructure and government administration aid have received extra attention, while all other major sectors of aid were relatively neglected. Food aid and food security assistance have been marginal and decreasing. After a sustained period of non-investment in agriculture and hunger in Afghanistan, agricultural aid has recently increased. According to the World Food Program, 85% of the total household income in Afghanistan was spent on food (reported by Chelala 2008). In 2008, the Afghan Ministry

of Health also issued an official warning that more the 1.6 million children under the age of five and thousands of women could die in 2009 as a result of the lack of food and medical care (Chelala 2008). Even after this expressed apprehension, predicated calamities, assistance for health care, food security and agriculture have not increased nearly as much as assistance for government or civil affairs. Aid for education has been neglected as well.

Figure 5.5 shows that the total aid for health care, agriculture, forestry, fishing, food safety and security comprises only about 10% of the total money allocated for Afghanistan, while government and civil affairs aid and aid for economic infrastructure have been allocated 40% of total funds. A similar analysis of Iraq provides a more extreme picture. According to the Congressional Research Services (CRS), the total funds that have been allocated for Iraq from the DOD (United States) have exceeded \$800 billion (reported from Belasco 2011). Belasco also reports that DOD funding has also been used to build infrastructure, stability operations, business development and governance. In Figure 5.6, it is shown that DOD funding has declined in recent times, but so has the total development assistance provided to Iraq. Non-military sectoral aid levels are seen to be miniscule compared to funds allocated by the DOD for military and non-military assistance. While much interest is expressed in Iraq by the foreign assistance community, Iraq's per capita Official Development Assistance of \$159 (since 1999) is less than other developing nations in either conflict or non-conflict zones. The OECD and World Bank databases show that Slovenia, Uruguay and Azerbaijan received \$198, \$192 and \$164, respectively, per capita aid every year since 1999. All of these

nations are less conflict-prone than Iraq and are advantageously located for donors. It is further learned that from 1999, Iraq's per capita aid ranks 47th among all developing economies. As might be expected, small islands and nations with very low populations show higher per capita aid than larger countries. Even after considering economies with more than 2 million populations, Iraq ranked 12th.

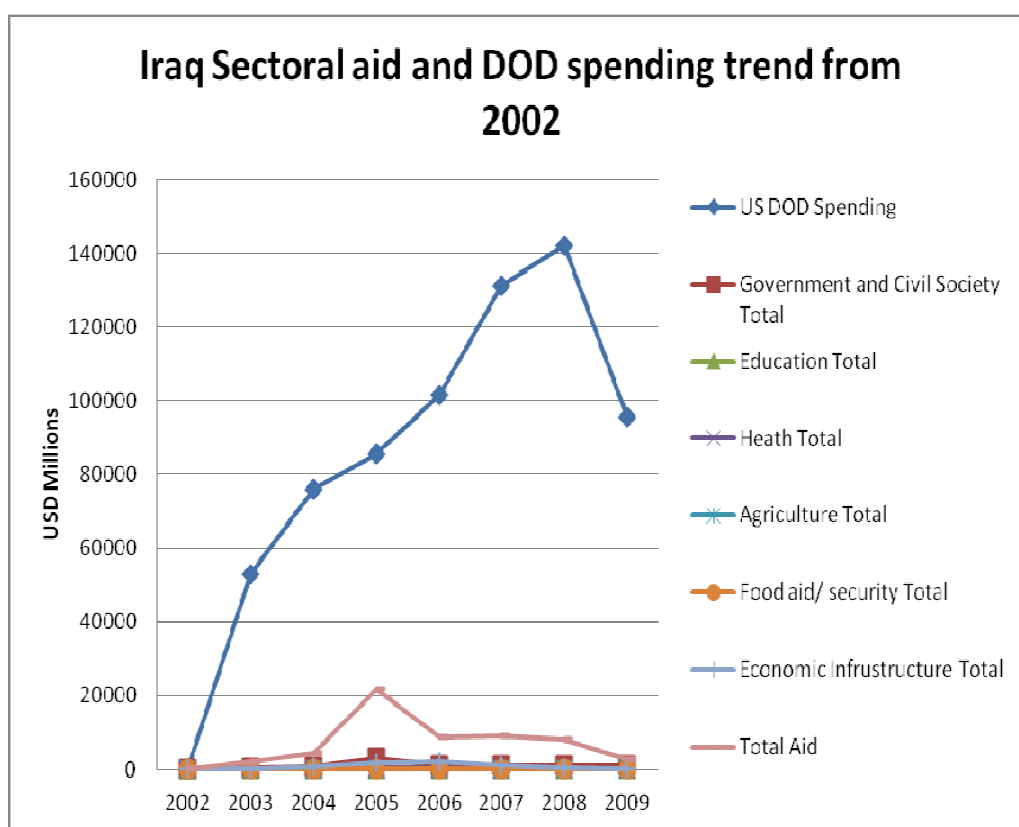


Figure 5.6: Time trend graph comparing aid and defense spending in Iraq since 2002. Source: World Bank, OECD DOD.

After 2008, DOD spending has decreased quite significantly. Also, the total aid provided to Iraq has decreased significantly. Figure 5.7 shows the trends of disbursed

ODA in most important sectors in Iraq. The total money allocated for government administration and civil society, along with economic infrastructure, has led the foreign assistance category since the multi-national force entered. After 2005, both of these sectors received less aid, but still with government administration, they have allocated over \$1 billion in 2009. Apart from these two sectors, the others have been relatively neglected. Compared to the huge amount of funds invested by the DOD and other agencies, aid for agriculture and food security is quite low. A United Nations report published in 2005 claimed that malnutrition among children had doubled to 8% since the US lead invasion (Reported by BBC 2005). In their reports and statements, the World Food Program (WFP) constantly asked for funding, stating that Iraq had a “dismal shortage” of food, with over three million starving people. A published WFP food security survey claimed that over 27% of all children are chronically malnourished, even after receiving food through the government’s Public Distribution System (UN Food Programme Report, 2005).

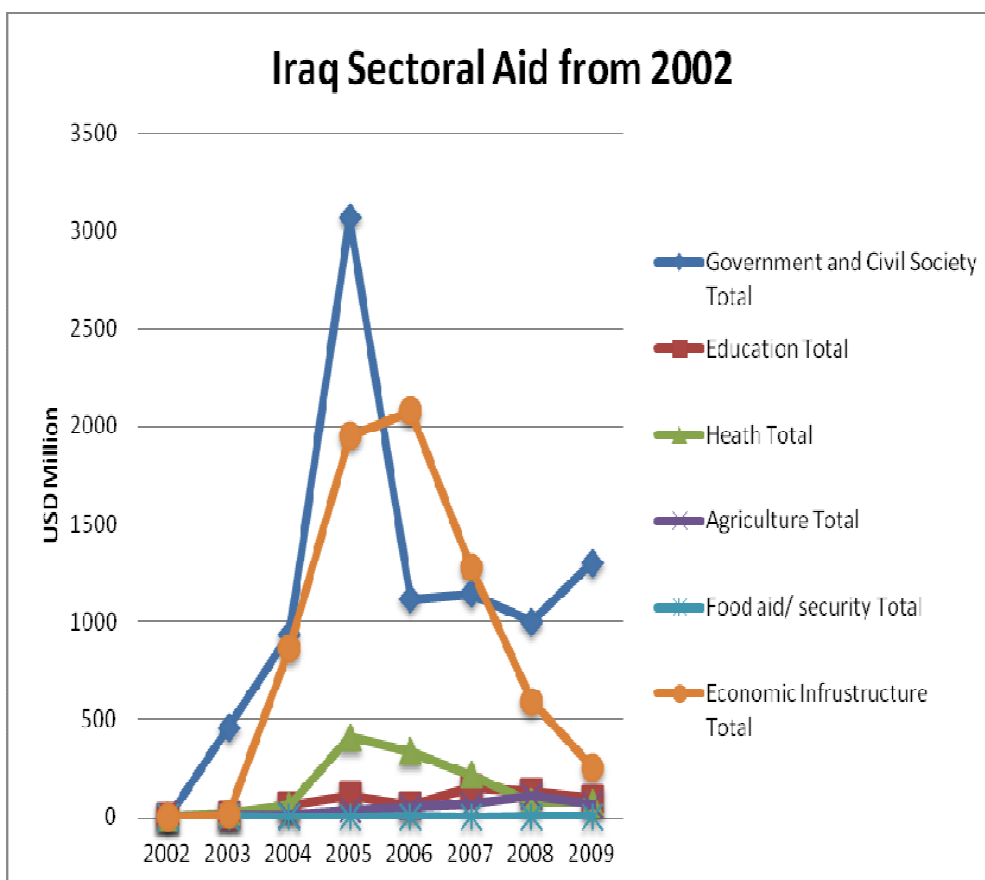


Figure 5.7: Sectorial aid trends in Iraq from 2002. Source: World Bank, OECD.

Calum Gardner, the WFP country director in Iraq stated, “The hungry in Iraq should be at the top of donors’ lists; instead, they seem to be at the bottom” (Source: UN report 2005). Figure 5.8 shows that from 2002, food security and agricultural development did not receive even 1% of the cumulative non-military aid disbursed in Iraq. Trend-wise, health care and education aid in Iraq has also been decreasing. Although receiving more than agriculture, these sectors are only allocated 2% and 1%, respectively, of the total ODA.

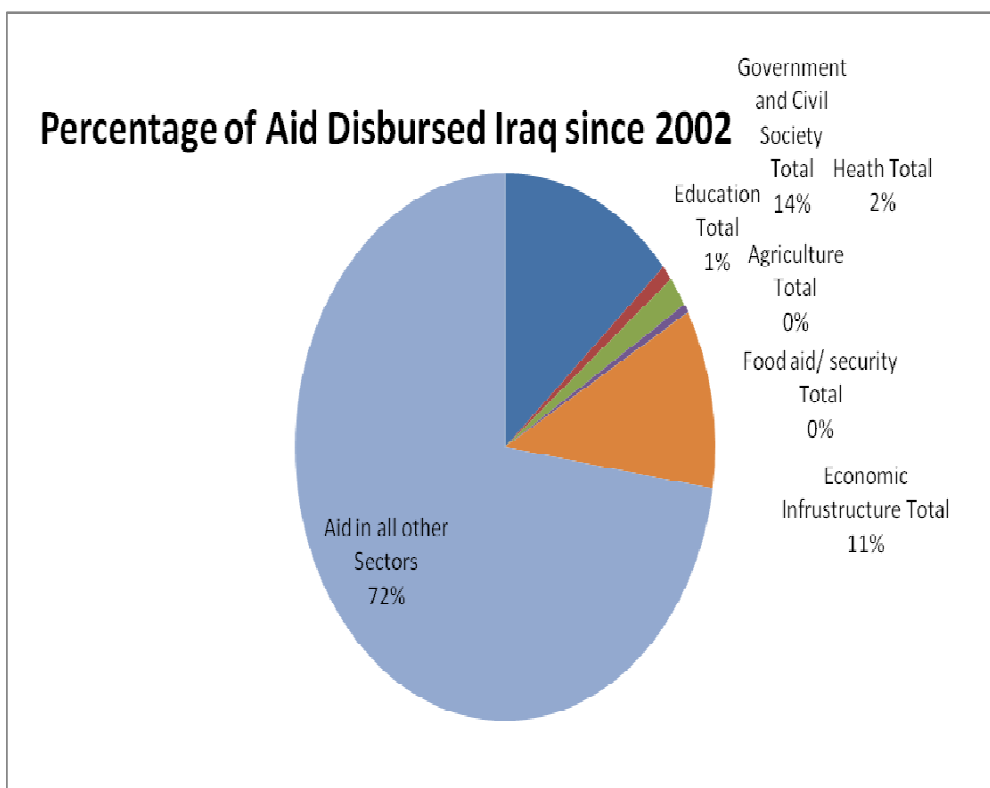


Figure 5.8: Foreign assistance by sector in Iraq since 2002. Source: World Bank, OECD.

5.5 Regression Analysis

The analysis in chapter IV showed that, in aggregate, foreign assistance cannot be shown to reduce conflict. Using the more limited dataset for aid by sector from 2002 to 2007 across all developing countries, combined with conflict and violence data, a better understanding of development assistance is possible. In an analysis, international conflict and intra-country violence are treated as the dependent variables. Conflict is

Table 5.1: Pooled Least Square Estimation of Conflict on Foreign Assistance. The Double Asterisk Implies Significance at the 10% Level; Single Asterisks Imply Significance at the 5% Level.

Dependent Variable: CONFLICT				
Method: Pooled Least Squares				
Cross sections				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
All other assistance	1.17E-10*	7.01E-11	1.665921	0.0965
EDUCATION	-0.003278	0.005789	-0.566179	0.5716
HEALTH	0.005916*	0.003058	1.934592	0.0537
ECONOMICS	0.009141**	0.004162	2.196443	0.0286
GOVERNMENT	-0.000870	0.000720	-1.208109	0.2277
CIVIL	-0.003811	0.003559	-1.070701	0.2849
AGRICULTURE	-0.027403**	0.009292	-2.949020	0.0034
FOOD	0.004522	0.002524	1.791461	0.0740
Constant	0.188906	0.062651	3.015217	0.0027
R-squared	0.164920	Mean dependent var	0.324455	
Adjusted R-squared	0.148384	S.D. dependent var	0.676447	
Log likelihood	-386.8616	Hannan-Quinn criter.	1.951683	
F-statistic	9.973246	Durbin-Watson stat	0.688826	

measured on a scale of 1 to 7, with 1 being the lowest in terms of death and catastrophe and 7 being the highest. The conflict events were coded from 1960. The violence data comprises the number of events in a country over the period of a year. The independent variables consist of aid for Government Administration, Civil Society Strengthening, Basic Health Care, Agricultural Development, Food Security/Safety, Education Policy, and Economic Development, along with an aggregate estimate for assistance in all other sectors. Table 5.1 shows the effects of foreign assistance to different sectors on conflict, using an unbalanced pooled of the least square analysis cross-section with no effects.

Controlling for all other types of major assistance, agricultural development has a statistically significant negative relationship with international conflict at a 1% significance level. It is concluded that agricultural assistance successfully mitigates international conflict. Aid for all other sectors, basic health care and economic development is positively related to international conflict. The results suggest that underlying implementation and disbursement policies for those two sectors needs a thorough re-evaluation. Government administration and civil society strengthening have a negative relationship with international conflict, though they are not statistically significant. Aid for Education has a negative but statistically insignificant effect on international conflict. Food security and all other kinds of foreign assistance have a positive, yet insignificant effect, on international conflict. The Durbin Watson statistic of .688 associated with Table 5.1 shows the absence of auto-correlation.

Table 5.2: GLS Estimation of Conflict on Foreign Assistance. The Double Asterisk Implies Significance at the 10% Level; Single Asterisks Imply Significance at the 5% Level.

Dependent Variable: CONFLICT				
Method: Pooled EGLS (Cross-section random effects)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	0.258971	0.063571	4.073723	0.0001
All other Assistance	4.18E-11	4.95E-11	0.844540	0.3989
EDUCATION	0.000406	0.004247	0.095637	0.9239
HEALTH	0.005492**	0.002244	2.447349	0.0148
ECONOMICS	0.002888	0.002459	1.174614	0.2408
GOVERNMENT	0.000174	0.000519	0.334931	0.7379
CIVIL SOCIETY	-0.005544**	0.003187	-1.739373	0.0827
AGRICULTURE	-0.012774**	0.006165	-2.072031	0.0389
FOOD	0.004407**	0.001957	2.251643	0.0249
Weighted Statistics				
R-squared	0.081938	Mean dependent var	0.126952	
F-statistic	4.507207	Durbin-Watson stat	1.343781	
Prob(F-statistic)	0.000029			
Unweighted Statistics				
R-squared	0.133261	Mean dependent var	0.324455	
Sum squared resid	163.4002	Durbin-Watson stat	0.590530	

To verify and validate the results, Table 5.2 presents an examination of cross-sectional data with random effects. Random effect GLS estimation is useful for checking the robustness of the findings. The primary hypothesis and result still holds, as it has been discovered that agricultural aid has a significant negative effect on conflict. Aid for civil society is again found to be significant and negative at the 10% level, showing that conflict-prone nations indeed need to have a good civil infrastructure. Aid for basic health care is again deemed to be inadequate and ill planned. The associated signs with government administration aid changes to positive, however, it still remains insignificant.

The intention of this research is to examine the effects of the different types of foreign assistance on international conflict. Hence, it can be argued that to capture the real outcome, one might study the lagged values of foreign assistance in different sectors. For example, lagged values of agricultural aid may reflect the real change caused by undertaking agricultural development projects. Table 5.3 provides the results, considering the one-year lagged values of foreign assistance. Though some of the coefficient and significance levels changes, the basic prognosis remains the same. Controlling for all other types of assistance, agricultural aid is significant and negatively related to international conflict. Assistance for strengthening civil society does not show significant negative results. Aid for government administration, though, shows a significantly negative relationship to international conflict. Through these analyses, it is concluded that agricultural aid is the only type of foreign assistance that mitigates conflict consistently.

Table 5.3: Pooled Least Square Estimation of Conflict on Lagged Foreign Assistance. The Double Asterisk Implies Significance at the 10% Level; Single Asterisks Imply Significance at the 5% Level.

Dependent Variable: CONFLICT				
Method: Pooled Least Squares				
Sample (adjusted): 1961 2007				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
OTHER ASSISTANCE(-1)	1.85E-10	5.72E-11	3.229926	0.0013
EDUCATION(-1)	-0.006245	0.005599	-1.115433	0.2653
HEALTH(-1)	0.005216*	0.003060	1.704221	0.0891
ECONOMICS(-1)	0.009344**	0.003174	2.943798	0.0034
GOVERNMENT(-1)	-0.001479**	0.000622	-2.378195	0.0179
CIVIL SOCIETY(-1)	-0.001142	0.003492	-0.327100	0.7438
AGRICULTURE(-1)	-0.015024**	0.007352	-2.043641	0.0416
FOOD (-1)	0.006472**	0.001872	3.456624	0.0006
R-squared	0.094660	Mean dependent var	0.330049	
Adjusted R-squared	0.078737	S.D. dependent var	0.677274	
Log likelihood	-397.1912	Hannan-Quinn criter.	2.027260	
Durbin-Watson stat	0.658282			

Table 5.4: Pooled Least Square Estimation of Inter-Country Violence on Foreign Assistance. The Double Asterisk Implies Significance at the 10% Level; Single Asterisks Imply Significance at the 5% Level.

Dependent Variable: VIOLENCE				
Method: Pooled Least Squares				
Cross sections				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
EDUCATION	0.410613	1.291211	0.318006	0.7509
HEALTH	2.311572**	0.563244	4.104031	0.0001
ECONOMICS	-0.028829	0.390711	-0.073787	0.9413
GOVERNMENT	0.302965 **	0.035768	8.470338	0.0000
CIVIL	-0.524036	0.708909	-0.739215	0.4608
AGRICULTURE	-0.414234	1.210481	-0.342206	0.7326
FOOD	-0.572391*	0.317181	-1.804620	0.0729
R-squared	0.521898	Mean dependent var	38.01124	
Adjusted R-squared	0.502211	S.D. dependent var	116.2906	
S.E. of regression	82.04785	Akaike info criterion	11.69638	
Sum squared resid	1144414.	Schwarz criterion	11.83939	
Log likelihood	-1032.978	Hannan-Quinn criter.	11.75438	
F-statistic	26.51035	Durbin-Watson stat	1.480624	

The effects of foreign aid on intra-country violence are commenced with a panel data pooled least square analysis. The results of Table 5.4 show that direct food security and safety assistance is statistically significant negative effect on inter country violence. Government administration and health care is again found to be positive and significantly related with violence at a 1% level, implying that aid for basic health and government administration needs substantial revision. Though not statistically significant, aid for agricultural development is again found to have a negative effect on the eradication of violence. The data was examined for auto-correlation, and as the Durban-Watson statistic implies, that quandary can be ignored.

To examine the robustness of the results, a random effect GLS estimate is employed in Table 5.5. The GLS estimate also supports the primary result that aid food security decreases country violence. The secondary results of futile government administration and basic health care aid also hold.

Table 5.5: GLS Estimation of Inter-Country Violence on Foreign Assistance. The Double Asterisk Implies Significance at the 10% Level; Single Asterisks Imply Significance at the 5% Level.

Dependent Variable: VIOLENCE				
Method: Pooled EGLS (Cross-section random effects)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	0.410613	1.291211	0.318006	0.7509
All other Assistance	2.311572**	0.563244	4.104031	0.0001
EDUCATION	-0.028829	0.390711	-0.073787	0.9413
HEALTH	0.302965**	0.035768	8.470338	0.0000
ECONOMICS	-0.524036	0.708909	-0.739215	0.4608
GOVERNMENT	-0.414234	1.210481	-0.342206	0.7326
CIVIL SOCIETY	-0.572391*	0.317181	-1.804620	0.0729
AGRICULTURE	14.05083	10.85064	1.294931	0.1971
FOOD	0.410613	1.291211	0.318006	0.7509
Weighted Statistics				
R-squared	0.521898	Mean dependent var	38.01124	
F-statistic	26.51035	Durbin-Watson stat	1.480624	
Prob(F-statistic)	0.000029			
Unweighted Statistics				
R-squared	0.521898	Mean dependent var	38.01124	
Sum squared resid	1144414.	Durban-Watson	1.480624	

Table 5.6: Pooled Least Square Estimation of Inter-Country Violence on Lagged Foreign Assistance. The Double Asterisk Implies Significance at the 10% Level; Single Asterisks Imply Significance at the 5% Level.

Dependent Variable: VIOLENCE				
Method: Pooled Least Squares				
Sample (adjusted): 1961 2007				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
OTHER ASSISTANCE(-1)	1.94E-08*	8.42E-09	2.306003	0.0226
EDUCATION(-1)	3.243406	1.156014	2.805681	0.0057
HEALTH(-1)	2.477059**	0.427092	5.799821	0.0000
ECONOMICS(-1)	-0.350384	0.391008	-0.896105	0.3718
GOVERNMENT(-1)	0.178469**	0.087177	2.047194	0.0425
CIVIL SOCIETY(-1)	-0.753560*	0.405607	-1.857859	0.0653
AGRICULTURE(-1)	-1.084772	0.970047	-1.118267	0.2654
FOOD (-1)	-0.552574*	0.281951	-1.959819	0.0520
R-squared	0.721089	Mean dependent var	41.26712	
Adjusted R-squared	0.706941	S.D. dependent var	122.7054	
Log likelihood	-815.6812	Hannan-Quinn criter.	11.34973	
Durbin-Watson stat	1.421621			

As in international conflict, the futility of government administration and basic health care aid may be attributed to lag time effects. Aid policies may take time to show their desired result. Hence, in Table 5.6, lagged values that study the effects of the different types of assistance intra-country violence are considered. Food security assistance is again revealed to be statistically significant and positive in reducing violence at a 5% level. Aid for civil society is also found to be significant and has a negative effect on violence. Aid for government administration and assistance for combined smaller sectors is shown to have a significant yet positive effect on intra-country violence. Aid for civil society is also deemed to be significant and positive at decreasing violence at a 10% significance level. The Durbin Watson statistic in this instance is 1.4, which is satisfactory.

It would be useful to examine the relationships between poverty and foreign assistance for agriculture and food security. However, as revealed in chapter III, the data provided on poverty by the World Bank is inconsistent and biased. Hence, a suitable proxy variable would be needed to estimate the effects of foreign assistance on poverty. In Table 5.7, the relationship between poverty and infant mortality, accounting for gross capital formation, income inequality, life expectancy and immunization rates, is projected. It has been discovered that infant mortality is highly statistically significant with poverty over time, making infant mortality an appropriate proxy for poverty. A pooled, unbalanced analysis on infant mortality from 1960 to 2007 for 89 countries estimates its relationship with different sectors of aid. Table 5.8 results show that only agricultural development is statistically and economically significant in reducing infant

mortality. Aid for education, civil society and government administration has a negative yet insignificant relationship with infant mortality. It has also been observed that total aid, grant, loan and foreign direct investment in all other sectors increases infant mortality.

Table 5.7: Pooled Least Square Estimation of Poverty on Mortality and Other Development Indicators. The Double Asterisk Implies Significance at the 1% Level; Single Asterisks Imply Significance at the 5% Level.

Dependent Variable: POVERTY				
Method: Pooled Least Squares				
Sample (adjusted): 1961 2007				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
MORTALITY	0.324478**	0.027524	11.78872	0.0000
GROSS CAP FORM	0.544561	0.175597	3.101199	0.0023
INEQUALITY	0.129400	0.117862	1.097895	0.2741
LIFE EXP	-0.425940	0.139419	-3.055106	0.0027
IMMUNIZATION	0.125102	0.086794	1.441370	0.1516
MORTALITY	0.324478**	0.027524	11.78872	0.0000
GROSS CAP FORM	0.544561	0.175597	3.101199	0.0023
INEQUALITY	0.129400	0.117862	1.097895	0.2741
R-squared	0.556155			

Table 5.8: Pooled Least Square Estimation of Mortality on Foreign Assistance. The Double Asterisk Implies Significance at the 1% Level; Single Asterisks Imply Significance at the 5% Level.

Dependent Variable: MORTALITY				
Method: Pooled Least Squares				
Sample (adjusted): 1961 2007				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(ALL OTHER ASSISTANCE)	4.280785*	0.341781	12.52494	0.0000
EDUCATION POLICY	-0.170179	0.621642	-0.273758	0.7846
CIVIL SOCIETY	-0.784915	0.490321	-1.600819	0.1111
AGR DEVELOPMENT	-1.883157**	1.118306	-1.683937	0.0939
GOVERNMENT ADMIN	-0.066760*	0.036271	-1.840604	0.0673
HEALTH CARE	0.765565	0.316863	2.416075	0.0167
ECONOMICS DEVELOPMET	0.382490	0.356675	1.072377	0.2849
FOOD SECURITY	0.423411	0.230568	1.836386	0.0679
R-squared	0.53854			

5.6 Conclusion

It is not suggested that aid for basic health care, education or economic development increases conflict and violence. Rather, the results may be showing that aid for these areas is not properly directed and executed. For example, if aid to these sectors largely benefits the group of more urban and affluent members of society, welfare disparities increase, possibly creating conditions conducive to violence. Since the overall grants, loans, aid and investments provided to non-agricultural sectors in impoverished conflict-prone nations appears not to serve the purpose of lessening violence, the focus of the aid policy and distribution mechanism needs re-evaluation. Severe conflict-prone nations, such as Iraq and Afghanistan, clearly need more aid. In order to reduce conflict, more resources need to be allocated to agricultural development and food security in conflict-prone poor countries.

CHAPTER VI

THE COST OF CONFLICT

“Sudan remains one of the World Food Programme’s (WFP) most complex operations, and large-scale humanitarian assistance in conflict-affected areas will continue to be needed in 2011. While some progress has been made in the overall security and stability situation since the signing of the Comprehensive Peace Agreement (CPA) in 2005, the widespread destruction and population displacement caused by decades of war, further exacerbated by recent poor harvests, high food prices and ongoing conflict, leave much of Sudan engulfed in a humanitarian crisis” – World Food Program

6.1 Introduction

The previous chapters have established the need for agricultural development and food aid in conflict prone nations. The empirical estimations of the directed acyclic graphs also provided that conflict is a standalone variable to be judged and treated separately from other socio-economic indicators. Hence, policies ought to be proposed to integrate food security and conflict mitigation together. These policies have to be region and commodity specific, as the needs of societies differ from one another. Considering the previous discoveries and current conditions, a model of “cost of conflict” and appropriate food aid disbursement policy is proposed in this chapter.

According to an estimate by FAO/WFP, 0.9 million people are currently severely food insecure and 2.4 million are moderately food insecure in Sudan (United Nations Mission). Southern Sudan faces threats to food security due to (1) historical and ongoing conflict, (2) extremely low level of basic infrastructure, (3) internally displaced populations and d) extreme environmental conditions (WFP country profile: Sudan). The 2005 Comprehensive Peace Agreement that ended the 21-year north-south civil war in Sudan is going to put further pressure on existing limited resources. Under these

circumstances, humanitarian organizations, such as WFP, intend to provide commodity markets for poor farmers, many of whom are returning refugees from war, to build their livelihoods and achieve food security. The primary goal in Sudan and Southern Sudan is to ensure food security and help mitigate the inter-country violence.

WFP support plans include food for education (school feeding and take-home rations), food for work and food for recovery programs, work with communities to carry out much-needed infrastructure projects, such as feeder roads, dams, schools, health clinics, wells and water collection ponds, training programs and support for vocational training for adults. In order to successfully implement these support programs, WFP needs to procure a significant quantity of staple food crops. Typically, food may be procured either locally or it can be imported from other countries that have surplus. Commodities for food aid may be procured from different sources. US food aid depends on commodity procurement in the US and a powerful political coalition of US farm groups, shippers and relief agencies that support in-kind food aid donation (Haggblade and Tschirley 2007). Alternatively, local and regional procurement of food aid in Africa has attracted growing interest for several reasons. 1) it is expected to be less costly; 2) it can be delivered much faster and 3) it can help keep markets strong for local farmers when external food aid is tribute. WFP's Financial Rule state, *"When conditions are equal, preference will be given to purchasing from developing countries"* (World Food Program, 2010).

In 2009, under LRP initiative, WFP bought almost US\$1 billion worth of food commodities, 82% of which was purchased from developing countries. Total purchases

in 2010 were 3.2 million metric tons, costing US\$1.25 billion (World Food Program 2010). WFP's experience suggests that LRP may lead to significant savings in terms of both commodity costs and delivery times. For instance, on average, maize procured in Africa costs 30% to 50% less than white maize imported from the US and arrives one to two months faster than imports from the US (Haggblade and Tschirley 2007).

The procurement rule of WFP is guided by the "Principle of cost efficiency and minimum cost," whereby food is procured locally if local prices are less than Import Parity Price (IPP), (Purchase For Progress 2010). When LRP meets the cost efficiency principle, it makes economic sense to procure food locally. On the other hand, if it is more costly to procure locally, then donor organizations like WFP face a moral dilemma: Should they meet the planned development objectives by importing from abroad at an IPP lower than the regional price? Or, should they continue procuring locally even at a price higher than IPP? If the latter route is followed, it is hard to justify in economic terms if one is looking only at price differentials. Although local procurement may involve higher costs in the short run, one might argue that the long-term benefits of doing so could be substantial. This is particularly true for a region like Sudan, where the long-term building of markets is a prerequisite for farmers. Stable demand for crops from an entrusted organization like WFP could provide incentives for the agents (citizens) to come back to farming. When they know that there is going to be a secure market outlet for their produce, LRP can provide motivation to return to agricultural production. This strategy, if appropriately implemented, would make farming more lucrative than engaging in violent activities for the rebellion groups. The

main contribution is twofold: 1) it develops a stylized model of food aid and security programs in conflict-laden Sudan and 2) In accordance with the Sudanese socio-political situation, the model helps optimize strategies for eradication of conflict.

6.2 Purchases for Progress

Purchase for Progress (P4P) is an integral part of WFP's local and regional procurement program. P4P enables WFP to experiment with new mechanisms to purchase food *locally*. Through this program, WFP has realized a cost savings of US\$22.6 million with respect to import parity price (IPP), (World Food Program 2011). The objective is to leverage WFP's demand for food commodities to develop market opportunities for smallholder, low-income farmers. The underlying idea behind the P4P initiative is as follows: A secure market would encourage smallholder farmers to increase and improve the quality of production, resulting in higher incomes (WFP: Purchase for Progress). In order to implement P4P, different approaches are being piloted and tested, depending on the local conditions in each country.

In the case of Southern Sudan, the goal of P4P is to strengthen the (re)emergence of farmers' organizations after the prolonged civil war. The idea is that once the farmer organizations (FO's) are able to access a stable market, they will encourage agricultural production by their members, thereby revitalizing local markets and contributing to the region's economic integration and stabilization (Purchase for Progress: Southern Sudan). Committed demand from WFP is assumed to encourage production and it is envisioned that over time, they should be able to participate in competitive tendering on commercial markets (Purchase for Progress: Southern Sudan).

In 2010, P4P started working with farmers' organizations in Central and Western Equatoria (known as the Greenbelt), in the semi-tropical zone of the southwestern part of the country. Through P4P, WFP intends to buy sorghum and maize from participating households. Contracts have been signed with 4100 farmers to procure 1500 metric tons of food over two years (Purchase for Progress: Southern Sudan). The primary goal is to provide new and stable market opportunities to the targeted population. This project gives an incentive to farmers and other stakeholders to increase production by offering a market outlet.

6.3 Problem with LRP/P4P

Local and regional procurement of food aid commodities is not a panacea. WFP has, in fact, encountered problems in identifying reliable suppliers of food aid commodities, limited infrastructure causing delay in delivery, etc. (WFP, 2007). Also, the basic premise of LRP is that food would be sourced locally when it is cheaper than sending in-kind food aid from outside countries. The cost efficiency principle may not be met in a post-conflict country like Sudan, where prices are likely to be higher than IPP.

There are other significant barriers to the viability of LRP. Conflict is one such important obstacle. The problems with implementation of the P4P program in Sudan are also scrutinized in this chapter. While organizations like WFP are willing to invest in development programs, such as the P4P, they are also constrained by uncertainties emanating from country-specific idiosyncrasies. In particular, at the planning stage, there is too much uncertainty regarding the price that must be paid to farmers to produce the

food crop, the cost of production in the region, the infrastructural problems and so on. One way to manage this uncertainty is to resort to contract mechanisms, whereby a certain amount of a crop is purchased at a guaranteed price.

Unfortunately, limited productivity and high production and marketing costs render local commodities uncompetitive in Southern Sudan compared to imported staples (Purchase for Progress: Southern Sudan). Low productivity in Southern Sudan may be attributed to supply side impediments like absence of transport infrastructure or access to proper inputs. Most of the smallholders do not have access to markets. Lack of proper extension services, quality seeds, agrochemicals and knowledge of the best agronomic practices also leads to low productivity in this region. Prices in the domestic market are also high, because historically, it has remained a conflict-prone region. The prolonged civil war has damaged market networks, logistics infrastructure and trade in general (The HGB Foundation). Following the referendum in January 2011, while Southern Sudan is now moving towards independence, nearly two decades of conflict have adversely affected the infrastructure and economic foundations of the country. The production of food has been hampered by fighting and displacement, as well as by unpredictable rainfall in recent years (World Food Program Country Profile: Sudan). In fact, the Emergency Food Security Assessment Report (2010) suggests that in South Kordofan, the probabilities of high food prices and conflict are both high (characterized by maximum of 5). Not only are these shocks recurrent, they are expected to occur throughout the year, with a high scale of severity (Emergency Food Security Assessment Report 2010).

The above discussion on the economic situation of Sudan highlights the severity of the problem of conflict, the interplay between conflict and high food prices and the resultant problem faced by organizations like WFP while designing assistance programs. With this background, research questions are formulated as follows.

6.4 Problem Statement

It is difficult to estimate the cost of conflict and hence it remains a challenging research topic for economists, public and donor organizations like WFP. Microeconomic case studies are likely to be more useful than the popularly used macroeconomic studies for the following reasons. Existing work tends to express the economic consequences of conflict in terms of its effect on GDP in a conflict-affected country. While macroeconomic studies do provide valuable insights on the aggregate effect of conflicts in a country, these studies tend to mask the effects on particular segments of the society. In particular, a macroeconomic study cannot provide answers to practical questions, such as: what is the monetary cost of reducing conflict in a particular region and what would be the cost of bringing the conflicting agents back to a peacetime equilibrium? The goal of this research is to propose a methodology to estimate the cost of conflict using a microeconomic setting. This approach would be particularly useful for organizations willing to invest in a country and asking the question, “How much extra money do we need to pay in order to reduce conflict in this region by increasing food security?” The constraints include the amount of financial resources and the best possible alternatives available to donor organizations. Macroeconomic studies, by design, cannot answer this practical question.

6.5 Literature Review

Existing studies, such as Collier (1994), Staines (2004) and Ra and Singh (2005), tend to express the economic consequences of conflict as a proportion of GDP. There have been some recent studies on the effectiveness of local and regional procurement programs (for instance, Clay and Riley (2005), Mwanaumo et al. (2005) and Haagblade (2006)). While Clay and Riley (2005) describe the cost-effectiveness of LRP, they do not address the risks associated with LRP. Some researchers criticize the LRP and claim that it may have an adverse impact on prices in local markets. LRP can potentially increase the demand for food and drive up food prices for consumers. There have been instances in Uganda and Ethiopia where LRP led to increased prices of staple foods. However, reports such as Mwanaumo et al. (2005) suggest that any food aid operation entails risk. In-kind food aid may reduce production and trade incentives in receiving countries. It could also induce dependency on outside countries, which could have negative long-term implications. Elaborate food aid programs may also hinder the progress of small local farmers and create obstacles for new domestic markets.

Mwanaumo et al. (2005) mention the possibility that (a) LRP may push local prices above import parity prices and/or historical prices, (b) suppliers may default on tenders and (c) locally or regionally procured food may fail to meet minimum safety standards. WFP tries to manage contract default and food safety risks through pre-qualification of traders and by using contract conditions that penalize traders for default (Mwanaumo et al. 2005).

Chalmers (2006) found that targeted programs of conflict prevention are significantly cheaper than the cure; it is easier and more cost-effective to prevent conflicts before an outbreak of violence. He points out that conflict prevention involves upfront spending commitments by different organizations. It would be highly useful therefore to estimate the cost of reducing conflict. This chapter proposes a method to estimate the cost of preventing conflict.

There are challenges with LRP/P4P at the implementation stage. One such problem is setting commodity prices to be offered to smallholders at planting time under forward contracts, then paying them at the time of procurement following harvest. To WFP, the challenge of *forward contracting* is to offer and pay a fair price without distorting or disrupting markets. Other implementation challenges are to prevent contract defaults and ensure that quality standards are met. Two related issues explored in this study are what price should be paid to the suppliers, and how should contracts be designed so that defaults by agents are avoided. By answering these two questions, a method to estimate the cost of reducing conflict is also developed.

6.6 Model Development

WFP/P4Ps aim is to maximize the net benefit from procurement through LRP/P4P by minimizing the cost of the program. P4P is an integral part of WFP's local and regional procurement program (WFP: Purchase for Progress). Under the P4P program, WFP is testing several novel ways to procure staple food crops locally and promote marketing opportunities for low-income smallholder farmers. Food may be

purchased using any of the following methods. The first alternative is a competitive process, whereby suppliers compete to sell WFP a commodity.

The second approach is direct contracting, under which at the time of harvest, WFP negotiates a contract to buy a commodity directly from farmers' organizations. The price is pegged to the prevailing wholesale market price for high quality crops. With direct contracting, a competitive tender with a minimum of three bidders is not required. Using a warehouse receipt system, smallholder farmers deposit crops that meet pre-determined quality criteria in a certified warehouse. In return, they are issued a receipt for about 60% of the market value of the commodities. The receipt can be exchanged for cash at a local financial institution. The final balance is paid once the commodities are sold.

The third approach is forward contracting, under which WFP agrees to purchase a specified quantity and quality of commodity from the farmers' organization at some time in the future at a minimum guaranteed price. In the case of forward contracts, the suppliers receive an agreed price or a price set according to a specified pricing formula (WFP: Purchase for Progress). Forward contracts are also being used to build up local food processing capacity. For instance, fortified blended flours, biscuits and vegetable oils are being produced using forward contracts. This is achieved by linking smallholder farmers directly to processing facilities so that they can supply the staple commodities required as raw materials. In view of recent developments and policies in Sudan, forward contracting appears to be the most pertinent.

The sequence of actions between the players is as follows:

1. WFP offers a contract to a Farmer Organization (FO) to deliver a specified quantity and quality of a commodity at some time in the future at a minimum guaranteed price.
2. Contracts are signed between the P4P and FO.
3. After signing the contract, a certain segment of the agents decide not to switch to farming. They continue engaging in conflict. The remaining segment of agents switch from conflict to farming to participate in the P4P program.
4. If an agent decides to switch from conflict to farming, s/he incurs a switching cost, exerts effort and invests in assets to produce the crop for WFP.
5. After yield is realized, the principal buys the crop from the FO at the guaranteed contract price.

Suppose the economy comprises n agents, who are possibly engaged in some form of conflict. The P4P program aims to reduce conflict and ensure food security in the region. The goal can be accomplished in various ways. One way is to bring the conflicting agents into mainstream activities, including agricultural production. The idea is to create a stable and sufficient demand for the crop produced by the agents, so that they would find it optimal to return to the mainstream activities and relinquish engagement in conflict.

In order to provide a demand for the produce, P4P prepares contracts for the agents such that q units of output will be purchased from them at a guaranteed price of p dollars per unit of production. Let the marginal cost of production to be c dollars. Thus, the profit of a typical agent signing the contract is given by:

$$\pi = (p - c)q \quad (6.1)$$

The Participation Constraint or Individual Rationality Constraint (IRC) for each agent is:

$$\pi \geq s + u \quad (6.2)$$

Inequality (2) tells us the price that should be paid to a typical agent so that s/he relinquishes conflict and accepts the P4P contract. If the agent accepts and signs the P4P contract, the benefit would be the profits earned through selling crops. The cost of signing the contract involves two distinct components. The value s represents the cost incurred by an agent in order to switch from conflict to farming, as it is assumed that the agents are paid a monetary amount to be employed in conflict. The other component of cost, u , can be interpreted as the cost of leaving the group of people who are currently engaged in conflict. It may be the case that agents joined in conflict have bonded closely. Leaving the “peer group” to join the P4P program would be costly for the agent. The peer group may exert a severe penalty on the agent who intends to leave the group and join the P4P program. This penalty can significantly deter the agents from signing the contract, thereby leading to a failure of the envisaged program. Thus, the participation constraint implies that P4P program must ensure that the benefit from switching to farming activities must exceed the cost of switching plus the utility from alternative “employment,” which, in this case, is conflict.

We assume that the switching cost s varies randomly across agents and is uniformly distributed over $[0, s_{\max}]$. This captures the intrinsic heterogeneity among the agents in terms of their ability to switch from conflict to alternative employment, viz. farming. Agents with switching cost $s \in [0, s^*]$ would switch to farming. Equivalently,

agents whose switching costs are too high, i.e. $s \in (s^*, s_{\max}]$, would not switch. From (2)

we compute the threshold required for an agent to switch:

$$s^* = \pi - u \quad (6.3)$$

The probability that an agent will give up conflict and sign the P4P contract is derived as follows:

$$\Pr ob(agent \text{ will switch}) = \Pr ob(s \leq s^*) = \int_0^{s^*} f(s) ds = \frac{s^*}{s_{\max}} \quad (6.4)$$

Equivalently, the probability that an agent will continue to be engaged in conflict can be computed as:

$$\Pr ob(agent \text{ will not switch}) = \Pr ob(s \geq s^*) = 1 - \Pr ob(s \leq s^*) = 1 - \frac{s^*}{s_{\max}} \quad (6.5)$$

Thus, the expected number of agents who would switch to farming under P4P program is:

$$n \times \Pr ob(agent \text{ will switch}) = n \cdot \frac{s^*}{s_{\max}} \quad (6.6)$$

The expected number of agents who would not switch to farming and continue with conflict is:

$$n \times \Pr ob(agent \text{ will not switch}) = n \cdot \left(1 - \frac{s^*}{s_{\max}} \right) \quad (6.7)$$

6.7 Definition: Counterfactual Supply

The term *counterfactual* can be defined as the supply of crop under the P4P program as the quantity that *could have been* produced locally if there was reduced conflict. The peacetime or counterfactual supply may be derived as:

$$Q^{counterfactual} = n \cdot \frac{s^*}{s_{\max}} \cdot q \quad (6.8)$$

The principal (in this case, the WFP) wants to procure $Q^{counterfactual}$ through the P4P contract mechanism. From each of the participating agents, the principal would collect contracted quantity q and pay the contract price p . Let the value of each unit of procured crop be v ($>p$). Typically, WFP purchases quantities of staple crops to distribute through food assistance programs. It is assumed that the parameter v represents the value of crop used in the humanitarian programs. Thus the objective function of the principal is:

$$(v - p) \times Q^{counterfactual} = (v - p) \cdot n \cdot \frac{s^*}{s_{\max}} \cdot q \quad (6.9)$$

Equation 9 represents the net benefit of crops procured from the agents who sign the contract and participate in the P4P program. Maximizing the above expression subject to the IRC of the agents (2) yields the optimal contract price:

$$p^* = \frac{v + c}{2} + \frac{u}{2q} \quad (6.10)$$

Comparative static results with respect to the exogenous parameters yield valuable insights for the principal (P4P Organizers).

$$\frac{\partial p^*}{\partial v} > 0, \frac{\partial p^*}{\partial c} > 0, \frac{\partial p^*}{\partial u} > 0, \frac{\partial p^*}{\partial q} < 0 \quad (6.11)$$

The first of the derivatives implies that if the value of the procured crop increases, then the principal would want to pay a higher equilibrium price to the farmers. This could be the case, for example, if the desired form of assistance is a school lunch program. It is often argued by the farmers that their cost of production is too high, which is expected in

a region with a history of conflict. Hence, almost intuitively, the second derivative shows that, if the cost of production increases, so will the equilibrium contract price. Otherwise, the agents would not find it optimal to switch to farming if they are not paid sufficiently to cover for their costs.

Similarly, the third derivative means that, if the benefit from engaging in conflict is high, then in order to induce the agents to give up conflict, the principal would have to pay a higher price to reduce conflict. As u increases, the optimum price would have to increase as well. Finally, the last of the derivatives shows that if the principal is willing to purchase a higher quantity of crops, then the equilibrium contract price would be set at a lower level. The farmers would be able to sell a larger crop and the income from selling that crop should be sufficient to meet their participation constraint specified in (2). Moreover, as P4P devotes more money in the program, the quantity of the crops will increase, which in turn would lower the equilibrium price of the produce. In this highly stylized set up, the local procurement cost under the P4P scheme to be borne by the principal is:

$$p^* \times Q^{\text{counterfactual}} = p^* \cdot n \cdot F(s^*) \cdot q \quad (6.12)$$

As an alternative to local procurement, the same amount of crop could have been imported at the Import Parity Price, or IPP (p^w). In that case, the cost of procurement through imports would be:

$$p^w \times Q^{\text{counterfactual}} = p^w \cdot n \cdot F(s^*) \cdot q \quad (6.13)$$

Thus, the difference in procurement costs under the two alternatives is $P^* - P^w$

$$\Delta = (p^* - p^w) \cdot n \cdot F(s^*) \cdot q \quad (6.14)$$

If the equilibrium contract price p^* exceeds the Import Parity Price P^W , then the difference would be positive. Evidently, the principal must incur an extra bill of $\$(p^* - p^W)$ per unit of crop procured from the farmers. Thus, the farmers must be paid prices high enough so that farming becomes attractive compared to alternative activities, such as engaging in conflict. Δ may consequently be regarded as a “cost of conflict.” It captures the extra monetary cost that the principal must be willing to pay in order to implement the P4P program in a conflict region.

We note that the equilibrium income of each of the participating farmers is:

$$\pi^* = (p^* - c) \cdot q = \left(\frac{v - c}{2} + \frac{u}{2q} \right) \cdot q \quad (6.15)$$

Consequently, the threshold switching cost is computed as:

$$s^* = (p^* - c) \cdot q - u = \left(\frac{v - c}{2} \right) \cdot q - \frac{u}{2} \quad (6.16)$$

Since by assumption, $s \sim U[0, s_{\max}]$, the parameters must satisfy the following inequality:

$$v - \frac{2s_{\max} + u}{q} \leq c \leq v - \frac{u}{q} \quad (6.17)$$

Equivalently, it can be rearranged as:

$$(v - c) \cdot q - 2s_{\max} \leq u \leq (v - c) \cdot q \quad (6.18)$$

Inequality (17) implies that for the implementation of the P4P program, the production cost of the agents must be bounded. In other words, for the P4P program to be successful, the cost of production of the domestic producers must not be too high. It also

shows that the total value of the program ought to be higher than the total intrinsic utility of joining in conflict. Hence, initially, WFP has to devote at least a certain amount of financial resources towards the P4P program. This result leads to supply side policy implications. While WFP provides a sufficient *demand* for the crop and is willing to pay a guaranteed price to the farmers, there should be supply side interventions as well. Typically, costs of production are too high in regions with a history of conflict. Appropriate measures, like subsidies, building infrastructure should be taken in order to reduce the cost of production. Additionally, to build up the local markets, the WFP should also invest in education and technology transfer.

Inequality (18) implies that the outside option of the agent must also be bounded. If not, the envisaged P4P program might fail to induce a large number of agents to switch to farming. Thus, if the agents obtain too high a benefit from engaging in conflict, it is likely that the IRC (2) would be violated, consequently, they would refrain from joining the P4P program.

6.8 Discussion

The situation in Sudan described in the introduction of this paper suggests that, at the planning stage, there can be much uncertainty in implementing a program like P4P. The method outlined in this paper can, however, be used to estimate the cost of implementing the program, especially in conflict-prone areas. The principal or donor organization needs to obtain the pieces of information on n (targeted population), c (cost of production), p^w (Import Parity Price) and p^* (optimal contract price) in order to get an estimate of the cost of conflict. However, the stylized model provides a switching cost,

possible profits, and above all, the possible cost of conflict. The cost of conflict is expressed through price disparities, intrinsic utility of joining agents engaged in violence, the number of agents and distribution of the utility functions. Even qualitative and market study data from Sudan can provide information on the feasibilities of the P4P project. The model also shows that it is imperative for WFP to invest in education, technology and other strategies that would increase production. An expression of switching costs was also computed, which expresses the cost as value, cost and utility. The comparative static results provide insights that should be the basis for strategies of the P4P programs.

6.9 Conclusion and Future Research Directions

Assessing the relative effectiveness of the three alternative mechanisms (viz. forward contracts, direct contracts and competitive tender) is a natural extension of this chapter. Also, it was assumed in the model that the cost of production is same for all the agents. In reality, this may or may not be true. Future research may be directed to examine the effect of agents with different efficiency levels. Also, a significant problem with the P4P program is the default of farmers on contracts. Weak legal systems could limit WFP's ability to enforce contracts and impose penalties. Often it has been found that after signing the contract, the farmers are unable to meet contractual terms regarding quantity and/or quality. Thus, the vendor may deliver only part of the contracted amount to WFP (partial default) or not deliver at all (total default). Even though agents are paid only according to what is actually delivered, contract defaults are a concern for WFP (2011). In the case of default, WFP has to replace the defaulted quantity with alternative

commodities to avoid pipeline breaks for the beneficiaries of food assistance programs. Thus, contract defaults can lead to higher transaction costs. In fact, out of the 150,000 metric tons of food contracted since September 2008, about 14% was defaulted and 28% was delivered with delay (Purchase for Progress Update February 2011). The February 2011 update suggests that reasons for defaults tend to be similar across countries. Defaults can be generally attributed either to WFP's own internal business processes that need to be smallholder friendly, or to the P4P vendors' own weaknesses (weak bulking/aggregation capacity; financial weakness; lack of key post-harvest handling infrastructure and storage; weak governance structures or trust issues). It was found that the two factors often reinforce each other. There could be several reasons behind the default. Two of them are price fluctuations over the contract lifetime and quality shortfall issues. In fact, a significant problem that has been a concern for donor organizations is side-selling. Under this circumstance, after signing the contract, some of the agents may decide to sell the produce to local traders instead of WFP. This may happen and has often been the case when local prices exceed the agreed contract price. Some farmers may decide to default on the contract and sell their crop to the local organization at a higher price. This moral hazard problem can dampen the investment initiative of donor organizations and may be a serious impediment to the success of the P4P program. The effect of asymmetric information due to moral hazard is an interesting case and remains a future research area.

CHAPTER VII

THE RELATIONSHIP BETWEEN COMMODITY PRICES AND VIOLENCE: A BAYESIAN BOOTSTRAP METHOD OF POLICY ANALYSIS

7.1 Introduction

Recently, the Ministry of Agricultural and Forestry of Southern Sudan stated that 1.3 million Sudanese people will have an insufficient food supply this year. Due to this food shortage, inflation increased to 57.1% in August 2011 (Sudan Tribune, September 2011). During the last two years, the prices of staple cereals have nearly doubled.⁸ The World Food Program echoed the concerns of the ministry as it suspected severe food shortages in both Southern and Northern Sudan (WFP report 2011). According to both of these organizations, rising cereal prices and violent activities are two cardinal reasons for the scarcity of food in Sudan. The underlying assumption being that conflict is directly related with commodity prices. This chapter proposes to shed light on this conjecture through a probabilistic causality approach. It contributes to the existing body of literature in three fundamental ways: 1. Explores the direct causal relationship of commodity prices and violence in Sudan through Markov Chains. 2. Accounts for prior knowledge in policy enactments and discovers the implications of food prices on conflict through inductive causation. 3. Proposes agricultural development policies for conflict prone Sudan.

⁸ Source: Sudan Ministry of Agriculture.

7.2 Methods

Inductive causation and Bayesian search models have been more commonly used in biostatistical research (Friedman 2004, Dhar et al. 2004, Joshua et al. 2011). Recently, philosophers and computer scientists (Sprites et al. 2000, Pearl 2000) have been utilizing these concepts of causality using probability distributions employing directed acyclic graphs (DAG). In economic sciences, specifically with price discovery models, Bessler et al. (2002) have used DAG models to discover price information of Millet in Mali. The purpose of this analysis is to take the price discovery approach further to find causal relationships between commodity prices and violent activities.

A Bayesian network, is a joint distribution over a set $X = \{X_1, \dots, X_n\}$ of random variables and represented as a product of conditional probabilities. Such a network associates each variable X_i with a conditional probability $P(X_i|E_i)$. Here, E is assigned as the set of variables that are the parents of X_i . The causal implication being the parents would directly influence the choice of the value for X_i . The graphical representation of this notion will be provided by the aforementioned directed acyclic graphs (DAG), where edges are directed from parents to children. The DAG method is essentially a product decomposition system that ensures a coherent probability distribution⁹⁹. The conditional independence in product form would be:

$$P(X_1, \dots, X_n) = \prod_i P(X_i|E_i) \quad (7.1)$$

The intention is to discover the causal interactions of commodity prices and conflict. Hence, an appropriate method would emphasize the importance of

⁹⁹ A rigorous discussion concerning directed acyclic graphs can be found in chapter 3.

understanding the process that generated the data as opposed to considering the joint distributions of the price and conflict mechanism. A probabilistic graphical method is appropriate because it will provide pictorial illustrations of parents (causes) and children (effects) of violence and prices.

However, for the second part of the research, one of the underlying assumptions of the DAG model would be relaxed, due to policy restrictions. The restriction is based on a “prior knowledge” recognition that aid bureaucrats only react to a conflict scenario after the outbreak (increase) of terrorist/violent events¹⁰. In relevant economic literature, Bessler et al. (1988, 1986) used Bayesian priors in “real world settings” with time series models. This scenario is more pragmatic and parsimonious, as the restriction entails conflict as being the “cause.”

Due to the relative smaller size of the data set, the causal results may lack confidence. Additionally, the underlying notion of such an approach is that the variables would have a joint normal distribution. However, in the “real world scenario,” rejecting a true hypothesis can be far more detrimental. During times of severe conflict and instability, immediate enactment of policies is needed. The objective in this situation is to recommend a cereal that probabilistically affects or causes violence the most. A bootstrapped Bayesian validation can provide the results with robustness. Efron (1979) discussed the bootstrap technique to generate sampling distribution of statistics. The central idea case resampling is that the distribution of the replicates around the observed data is a valid approximation of the distribution of observed data sets on the true,

¹⁰ Chapters 2,4 and 6 provide more justification on this postulation.

unknown process that generates the data sets. In the policy analysis section, each data set is pseudo replicated 100 times. The same causal inference method is used for each of the replicated sets to discover the causal patterns between commodity prices and violence.

7.3 Data

The monthly data for violence on Sudan has been coded from the Worldwide Incident Tracking System database (WTS). The monthly data has been organized by aggregating the total fatalities every month for 88 months. The commodity price data for this study was originally collected from the Sudanese Ministry of Agriculture (SMA) and verified by the World Food program (WFP) database. The commodity prices consist of monthly average prices from 2006 to 2010. The three most important commodities for Sudan were selected, they are: millet, sorghum and wheat. Sudan has the potential of being self-sufficient in sorghum and millet production. Sorghum is the staple food cereal of Sudan. According to SMA and WFP, Sorghum (Feterita) provides 26% of the total dietary energy supply (DES) for the Sudanese population. It is estimated that the per capita human consumption of sorghum (Feterita) is about 88 kg/yr. Millet is the second most grown cereal in Sudan. It accounts for 5% of the total dietary needs of the Sudanese population, as the average per capita human millet consumption is estimated at 15 kg/year. While it is not self-sufficient in production, wheat is actually the second highest consumed cereal of Sudan. Sudan produces only 28% of its total need of wheat. The total average consumption per capita of wheat in Sudan is 47 kg/yr.¹¹

¹¹ Source: Ministry of Agriculture, Sudan.

7.4 Analysis and Results

The analysis commences with a Greedy Efficient Search (GES) algorithm consisting of the commodity prices and fatalities. Figure 7.1 shows the results of the GES algorithm in DAG format. The underlying assumption of this analysis is that violence and change in commodity prices occur simultaneously. The figure illustrates that information originates from millet prices and affects terrorist activities as well as other commodity prices. Without usage of prior beliefs, it can be deduced that commodity prices effect/create violence in Sudanese society.

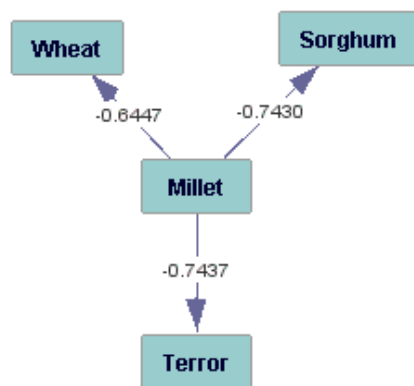


Figure 7.1: GES algorithm portraying the causal structures of wheat prices (wheat), sorghum prices (sorghum), millet prices (millet) and terror (fatalities from violent activities). The sign and number of the estimated beta is provided in between the arrows.

Millet prices show a negative causal relationship with terrorism, implying that a decrease in millet prices would ignite conflict. Millet prices also portray a negative effect on sorghum and wheat prices. This counter intuitive result may have two

explanations. First, Millet farmers engage in conflict when they do not obtain their expected prices for their produce. Second, since Wheat and Sorghum have a negative relationship with Millet, may be conflict increases millet production and its price. Putting knowledge upon terrorist events would be appropriate for policy analysis as most of the development policies are undertaken after times of violent conflict.

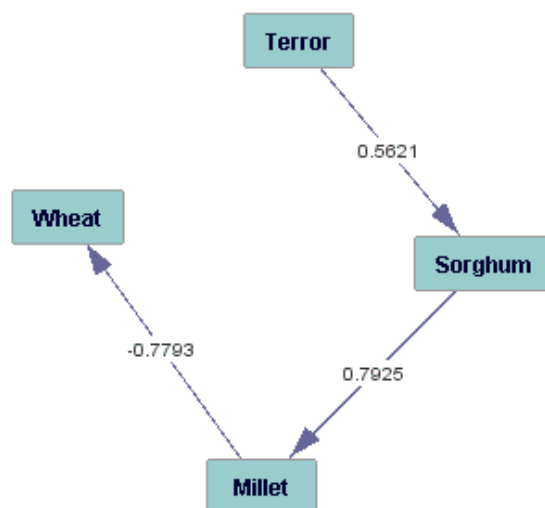


Figure 7.2: GES algorithm knowledge upon fatalities, portraying the causal structures of wheat prices (wheat), sorghum prices (sorghum), millet prices (millet) and terror (fatalities from violent activities). The sign and number of the estimated beta is provided in between the arrows.

As described in the method section, Figure 7.2 conditions puts “prior knowledge” on terrorist activities and uses the GES algorithm to discover causal relationships among the four variables. The figure shows that conflict directly affects and increases the price of sorghum, the main staple food of Sudan. In turn, sorghum

prices increase domestically grown millet prices. Although due to conflict, the prices of domestically grown cereals increase, while the price of wheat appears to decrease. The reactionary nature of donor countries may be the chief reason for this counterintuitive result. Wheat donation is the most popular food security measure during increased unrest. Exacerbated violence increases the supply of wheat in the Sudanese economy. The extra wheat in the market reduces the price of wheat.

7.5 Policy Analysis

The collected data is then bootstrapped for 100 iterations using a case resampling procedure. With the four variables in question, there are six different edges for every set. The 64 scenarios (to the power 3) for every set provide 192 possible models. DAG analyses of simulated scenarios ought to be able to determine the robustness of the probabilistic causal relationships between the commodity prices and terrorist activities. Table 7.1 provides the results of the GES algorithm after 100 times of bootstrapping.

Table 7.1: Results After Bootstrapping and Running the GES Algorithm on Each of the 100 Scenarios.

	Conflict	Wheat Price	Sorghum Price	Millet Price
Conflict	0.00	0.02	0.05	0.16
Wheat Price	0.06	0.00	0.50	0.50
Sorghum Price	0.10	0.47	0.00	0.49
Millet Price	0.52	0.50	0.51	0.00

Table 7.2: Results After Bootstrapping and Running the GES Algorithm on Each of the 100 Scenarios, Putting Knowledge on Conflict.

	Wheat Price	Sorghum Price	Millet Price
Conflict	0.05	0.59	0.29
Wheat Price	0.00	0.54	0.54
Sorghum Price	0.55	0.00	0.45
Millet Price	0.46	0.55	0.00

The rows are the independent variables and the columns are the dependent variables. The results show that millet has a direct affect on conflict 52% of the time and conflict has an edge with millet 16% of the time. While sorghum and wheat prices directly affect terror activities, they do so only 10% and 6% of the time, respectively. This result validates the discoveries of the DAG of Figure 7.1. It is also revealed that wheat prices have very low probabilities ($.06+.02=.08$) of being related with conflict. Millet prices have edges with violent activities 68% of the time, while sorghum prices have edges with violence 16% of the time. Therefore, it can be concluded that domestic staple food prices are more influential in causing violence.

Table 7.2 provides the results of the bootstrapped GES algorithms conditioned on conflict. As in Figure 7.2, this assumption has restricted possible edges from terrorist activities. With only three variables in question, there are two different edges for every set. The three scenarios (to the power 3) for every set provide 54 possible models. The matrix illustrates that terrorist activities affect domestically grown cereals 88% of time. While there is only a 5% probability that wheat prices will be influenced by increased violence. These revelations validates the findings of Figure 7.2, implying that assuming

conflict occurs first, it has a higher probability of affecting non-imported cereals.

Violence has a very low probability to affect wheat prices. Hence, if at all, subsidy should be provided for homegrown cereals to mitigate violence.

7.6 Conclusion

The novel approach of this chapter can provide valuable information during times of uncertainty and unrest. It was established that commodity prices have a direct causal relationship with inter-country violence/terrorism. However, information may be generated through a cereal other than the most consumed one in Sudan's case millet. All the commodity prices had a negative relationship with terrorist activities; implying increasing food prices create violence in the society. Assuming that violence occurs first, it has been discovered that conflict has direct causal effects on sorghum prices, which passes the information to millet and wheat prices. While sorghum and millet prices increase due to enhanced violent activities, wheat prices decrease. During increased conflict, wheat is obtained as food aid from the donors. The reactionary foreign aid community provides more wheat to conflict ravaged Sudan amidst higher violence and decreases its average market price. The results and analysis of this and the previous chapter exhibit that more emphasis ought to be provided on home grown cereals. The DAG results are validated by the bootstrapped models. They also illustrate that domestic cereals have a higher probability of being a cause or effect of violent conflict. Hence, the optimum policy to mitigate violence in Sudan would be to enhance subsidy for sorghum and millet.

CHAPTER VIII

CONCLUSION

All happy families resemble each other, each unhappy family is unhappy in its own way

Leo Tolstoy, *Anna Karenina*

8.1 Introduction

Relationships between foreign assistance, conflict and socio economic development are explored in this dissertation. Foreign intervention and conflict have different implications for different regions, cultures, economies and societies. To understand the efficacy of foreign intervention it is useful to evaluate development in the context of different sectors and nations. Chapters of this dissertation separately examine different facets of foreign intervention in diverse less-developed nations and conflict scenarios. Agricultural assistance, food security and relevant policies are provided a higher emphasis because hunger is considered to be an important aspect of mitigating conflict in areas which are extremely impoverished.

The research begins with a literature review that presents contradictory views, policies and research conclusions regarding conflict, foreign assistance and socio economic development. An evaluation and critique of contemporary research and policy provides the scope for the further examination that is undertaken in this dissertation. The review is followed by a description of the kinds, sources and availability of data related to foreign assistance, conflict and socio-economic development. A brief description of the data enables an immediate validation of the literature and policy review, assists in

developing hypotheses and provides an idea of possible discrepancies. The data review also demonstrates the possibilities of unique research regarding foreign development and conflict. Collected data also provides information about the socio-economic conditions and needs of various regions.

An applied theoretical model of the foreign assistance market considering the best responses of both the donor and recipient entities is developed. The assumptions of the model are derived from the literature review. Donor-recipient relationships and the possible rationale of their actions is represented mathematically. The validation of the theoretical proposition comes through an empirical model consisting of aggregate foreign assistance, conflict and socio-economic development. The machine learning algorithm estimates the relationships of the variables and discovers causal structures. After the illustration of aggregate foreign assistance and its causes and effects, the sectoral foreign aid for conflict prone nations is investigated. Through graphical illustrations and analysis of different conflict zones sectoral assistance allocation is explored. A regression analysis shows the effects sectoral aid on international conflict and inter-country violence.

Since it was found that agricultural assistance and food security programs can successfully mitigate conflict in impoverished nations, the balance of the research focuses on appropriate agricultural aid policies. A theoretical model is proposed to estimate the cost of conflict by donor entities. The agricultural subsidy would be paid to the farmers who will join the labor force renouncing violence. An inductive causation method is proposed to discover the causal relationships between commodity prices and

violence. After establishing the causal affects, a Bayesian bootstrap method is used to analyze different policy implications of food security programs.

8.2 Summary of Chapters

The literature review provides critiques and comparisons of philosophies and research on foreign aid, development and conflict. Most foreign aid researchers recommend improvements in policies but differ in their conclusions and propositions. The review of the contemporary policies and literature divided the current development exponents into three categories.

“Optimists” propose continuation existing mandates, but propose modified approaches and new organization and strategies to alleviate poverty and eradicate conflict. The reforms are generally non-radical and reflect extensions of old ideas. Optimists rely on evaluations of foreign development projects to provide accounts of successes. “Realists” on the other hand evaluate past projects to propose improvements on future endeavors. Most realists believe that the foreign aid disbursement process needs to undergo fundamental reform to make foreign assistance more efficient. Realists such as Dollar, Kanbur, Collier, Alesena, Kraay, Anderson et al. express their skepticism at the allocation procedures of foreign assistance. The group led by Dollar et al. claims that assistance should be allocated to the countries which have good policies. Others recommend allocation reform citing the inefficiencies of assistance in conflict zones. Scholars such as Collier, Goodhand et al. stress the need for more attention and assistance during times of violence in conflict zones. A group among the realists suggests that aid disbursement should be guided by examining the efficiencies of the

domestic governments of executing previous aid. The “pessimist” fraction believes that foreign assistance is totally futile, corrupted and inconsequential and may be detrimental to the progress of a nation. Several instances are presented of foreign interventions that have failed to accomplish the desired affects and have made the situation worse in impoverished nations. The pessimists typically do not propose novel approaches of foreign assistance and intervention. They recommend foreign assistance be discontinued entirely, or new mechanisms of international development be designed and introduced.

The approaches of all of the groups are seen to be ineffective. Even after inceptions of new accounts and agencies, the numbers of impoverished and conflict-affected citizens in the world has increased. Also providing assistance to only countries with appropriate infrastructure or with good governance in place essentially requires a fragile and poor to first develop, before it receives assistance – a self-contradictory notion development assistance. Such an approach surely fails to mitigate violence and eradicate poverty in the most needful countries. Good governance and infrastructure typically have to be established in impoverished conflict-prone countries. One concludes therefore that working “in” conflict prone economies can be a necessary approach to development. The condition of conflict prone nations worsens if they are left alone or are not provided socio-economic assistance during times of conflict.

The shortcomings of foreign development projects cannot be argued, however discontinuing foreign aid would be detrimental. Pessimists propose to initiate trade with developing nations in place of foreign assistance. But since equal terms of trade cannot be established with underdeveloped nations the “trade theory” of development may be a

formula for further impoverishment. The bureaucratic inefficiencies in foreign development projects have been highlighted by the pessimists, they are yet to propose any significant alternative. Easterly and others' pessimistic analysis is commendable but nevertheless development does need a structure and designed mechanism. While Western political beliefs and democracy may not be immediately implementable in the conflict prone nations, many believe that poor nations need to be assisted politically, financially and socially to reach a point where democracy and market economies can flourish.

Neo classical political scientists characterize theories of social movements and revolutions as having evolved from the structuralist to rationalist, and finally cultural. The more traditional view of conflict associates violence and collective action with poverty, deprivation and social mobility. Political scientists have long associated social and political movements with the desire of economic freedom and social mobility. Conflict being rational is both favored and opposed in the contemporary literature. However, prominent economists such as Collier (1998) have claimed that rebels will only engage in conflict if the benefit from engaging in conflict outweighs the cost of organizing the conflict. Conflict situations may also be "organized" by a few rebel leaders of a society to gain upper hand in a political power struggle. Such ideas have been promoted by contemporary researchers claiming that feeling of deprivation may have the possibility to generate more conflict than actual deprivation. Modern American philosophers such as Chua (2002), Zakaria (2003) have claimed that democracy in impoverished have nations brought upon instability, upheaval and ethnic conflagration.

Additionally, conflict philosophers have also claimed that disagreement, inequality, failing markets and social status quo has created violence in Africa. Poverty has been deemed highly correlated with conflict in African and Asian nations. Along with poverty, infant mortality, lack of education, access to medication, food and rights has been linked with conflict. It appears that inequality and feeling of being deprived is more likely to be cause of conflict rather than actual poverty. Therefore, deprivation theory also promotes that greed by a fraction of the society and grievances of the underprivileged may be one of the cardinal causes of conflict.

The third chapter has been designed to reflect and discuss about the data that are available on foreign assistance, conflict, violence and socio-economic indicators. The goals accomplished through this chapter are: 1. Identify and verify the sources of the available data. 2. Summarize the available data on foreign assistance, conflict and socio-economic development. 3. Validate the collected data through summary statistics. 4. Provide a primary analysis of the structure and distribution of the data. 5. Calibrate the data so that they can be used appropriately in following quantitative analyses. 6. Critique the data for inconsistencies.

The aggregate financial assistance data provided by the World Bank and OECD is thorough and extensive. The accounts consist of aid provided and received by all the donors and recipient countries since 1960. Aid accounts over the years depict that conflict prone nations, neighbors of the more influential nations and countries that have allied interests with the donor entities obtain higher amounts of aid. However, conflict prone neighboring countries of donor nations such as, Bosnia, Serbia or Montenegro

receive consistently more per capita assistance than Africa countries such as Chad or Sudan. As for aggregate aid is concerned traditionally the “second” world countries such as Brazil, South Korea and Philippines received the highest amounts of assistance from the donor entities. Around 1998 the trend shifted significantly as the poorer conflict prone nations started getting more attention.

The accounts on aid on different sectors are inconclusive, vague and inadequate. Even the total aid disbursed in important sectors such as Government Administration, Civil Society, Agriculture, Food security, Medication and Education assistance do not have any individual account before 2002. Without records of the sectorial assistance it would be very difficult to determine the specific patterns of support and their consequences.

The conflict data has been collected through Uppsala University Database, Global Terrorism Database (GTD) and World Wide Incident Tracking System (WITS). The data on international conflict from 1960-2009 has been collected from the Uppsala University Database consists upon data on international wars and conflict. The international conflict data illustrates that Asian and African countries have the highest amount wars and cross border unrests. Data on violent incidents commence from 1970 and was collected from University of Maryland’s Global Terrorism Database (GTD). Because of possible news bias in the underdeveloped nations and violent attacks of terrorist groups in the developed ones; the data on violence is normally distributed among the rich and the poor. Data on Sudan’s monthly conflict was collected from the WITS database.

The data on socio-economic development has been collected from United Nations, FAO, WFO and World Bank database. Among the social indicators the poverty data is discovered as inconsistent relative to the social development indices. Upon further examination it was concluded that this data set has a high possibility of being biased. The poverty data is generally collected with the help of the host country government officials or NGO's. The host agencies of the underdeveloped nations have an incentive to fabricate the poverty data to show that foreign assistance allocated to them are actually working; thereby induce more aid from the donor organizations. The underdeveloped countries have been found as more unequal in their wealth and income distribution. Economic indicators such as: Gross Domestic Product, Gross National Income, GDP Growth show predictable patterns as European and North American countries dominate the top tier and African countries rounding off the bottom tier. The data reveals vast disparities in economic development and prosperity between the developed and developing nations. The average GNI per capita for a developed nation is more than 2000 USD, whereas the average GNI per capita for a developing nation is around 200 USD. Even after foreign assistance and nation rebuilding policies the developed countries have more than quadruple times the growth than the developed ones.

The data on social indicators have a lot of missing data points. This inconsistency is understandable as census and estimations for most of the developing nations are few and far between. The social indicators such as: infant mortality, immunization per 100 children, literacy rate provides a bleak picture for low income countries through the

years, especially African nations. The bottom tier countries in the social indicators have a vast gap with the top tier countries. For example, Afghanistan occupies the last spot in both literacy rate and life expectancy. The average life expectancy and literacy rates for Afghanistan respectively are 38.93 and 18.95 per 100 people. The respective highs 81.8 and 99.9, depicts the huge amount of discrepancy between the developed and underdeveloped nations.

Primary evaluation of the data reflects the need of proper financial assistance and successful implementation of projects in the developing nations. The enormous differences in both economic and social indicators reveal the need for rapid and instant development. Unfortunately, even though foreign assistance has been increasing the inadequate indicators appear to have been consistent over time. Therefore it is imperative to make development projects successful and to understand the possible fallacies of foreign aid. The literature review has already suggested that poor socio-economic indicators can be a cardinal cause of conflict. A brief analysis of the inter-intra national conflict data shows that the most of the conflict prone nations are the underdeveloped ones with low socio-economic indicators. The financial assistance data suggests that the poorer conflict prone nation need more timely attention. Undeniably, conflict prone nations of Africa and Asia obtain a lot of foreign assistance albeit inconsistently. Most of the conflict prone nations receive assistance when the violence has reached its peak and has already done irreversible damage to the socio-economic infrastructure.

Chapter IV commences with an applied theoretical proposition of the aid market. It uses the donor mandates and recipient constraints from the literature review to formulate the assumptions of the primary model. As chapter III suggested the conflict prone nation are likely to obtain relatively more assistance from the donor entities. Under the current mandates the donor countries choose the level of foreign assistance to reduce conflict and aspire to accomplish their objective with optimum spending. Although, the donor entities can monitor the possible reduction of conflict, the recipients have the authority to allocate the resources that are provided to them. The recipient governments get positive utility from decreasing violence in their respective countries however, since they also have the option to spend the resources somewhere else (including possible corruption) the cost associated with reducing conflict have a negative disutility. The model deduces two simultaneous actions by the actors: the donor countries provide foreign assistance to reduce conflict; the recipient governments reduce efforts to decrease terrorism to obtain more assistance. Hence, the effect of foreign assistance on terrorism under the current policies and mandates is ambiguous. The model concludes that without making significant policy alterations of the donor agencies terrorism would not decrease even if the recipient governments behave rationally.

Following the theoretical proposition an appropriate method of estimating the causal relationships among foreign assistance, terrorism and socio-economic development is proposed. The method uses probabilistic inference and Bayesian networks to discover the possible causal chains between the aforementioned variables. A usual regression analysis can very well present spurious results. Due to the symmetric

nature of the variables it is not possible to identify a particular structure of these indicators. The variables in the development arena are determined simultaneously. So, it is impossible to identify the independent variable in this scenario. Additionally, the intention of this analysis is to identify the possible causal chains and inference among the variables. An approach that analyzes considers the simultaneous causal dependencies of the variable ought to suffice. The exact relations between socio-economic indicators, foreign aid and terrorism may provide useful insights to germane policies. The literature has also proposed the possible existence of latent variables such as: greed and grievances. Introducing suitable proxies or instrumental variables for these indicators may be controversial and lead to biasness. Through this machine learning algorithm the presence of latent variables can also be identified. The graphs systematically determine the skeleton of the underlying causal relations through arrows whose directionality is ordered by the conditional independencies observed.

The Fast Causal Algorithm (FCI) approach shows the existence of latent variables in the relationships of inequality, foreign assistance and terrorism. Inequality and terrorism both have edges directed towards foreign assistance implying that aid is provided as a reaction of inequality and violence. The main revelation from the DAG estimation is the non-effect; that foreign assistance does not have any causal effect on reducing terrorism and inequality. It implies that foreign assistance does not improve livelihoods nor does it assist in reducing in-country violence. The robustness of this result is confirmed through the Greedy Efficient Search Algorithm (GES). It is further discovered that inequality affects foreign assistance negatively; essentially reiterating the

donor mandate that foreign aid will be provided to impoverished nations that are improving their social indicators. An increase in terrorism enhances the level of foreign assistance from the donor entities; with foreign assistance unable to effect conflict.

The prognosis was examined further by adding socio-economic indicators such as: GDP growth, Infant mortality, Immunization rates and life expectancy in the basic model. Consistent with the previous discoveries foreign assistance is found to have no causal affect on GDP growth. Inequality is found to have caused by an increase in GDP growth, which implies GDP growth does have an adverse effect on foreign assistance. Adding the other social indicators does not change the discoveries significantly as terrorism/violence does not get influenced (lowered) by foreign assistance. However, it is revealed that terrorism negatively effects child immunization and infant mortality. These indicators are also moved by life expectancy. In relevant literature these indicators have been used as proxies for poverty, knowledge, education, access to medication and relative deprivation. From the graphical illustrations of this research depicts that the socio-economic indicators are not a root cause of inter country terrorist activities.

The results of the empirical analysis of chapter IV verifies the theoretical model that the effect of foreign assistance on terrorism is nonexistent or ambiguous. Additionally, indicators such as inequality, poverty, infant mortality etc. are not the root causes of terrorism. Terrorism is a standalone phenomenon not causally dependent on a countries socio-economic condition. Terrorism may be an effect of international and domestic politics, policies or may be ignited by the ruling class of the society. Hence, just mitigating poverty or improving livelihoods of the underprivileged would not be

able to control terrorism. Terrorism itself should be treated as predicament and ought to be dealt with separately. It is also discovered that foreign assistance does not have any causal implications upon enhancing the livelihoods of the impoverished of the poor countries. The assumptions of the theoretical model are also validated as improving social indicators are found to have increased foreign assistance in the recipient nations.

Since, aggregate foreign assistance does not improve the livelihoods of the impoverished or mitigate conflict. It would be beneficial to discover if at all aid for different sectors individually affect conflict. The analyses of the sectorial assistance commences through an allocation comparison. In conflict prone developing nations, military assistance obtains the higher amounts of funds than all the other sectors combined. In Afghanistan, US military alone contributed 93% of total the resources that went from foreign countries/entities. Relevant literature strongly supports to allocate resources towards governance and civil society rebuilding. Consistent with that, it is discovered that in conflict prone nations more than 50% of the total non military resources are spent government administration, civil society and economic infrastructure rebuilding. Sectors such as: agricultural development, food security assistance, education and health care are the most neglected. Assistance for agriculture and food security has been decreasing as policy makers have been stressing the need for more assistance on other sectors. For further quantitative analysis examines the effect of sectorial assistance on inter-intra national conflict by dividing aggregate foreign assistance into six sectors. They are: Basic health, Education policy and administrative management, Government

administration, Economic development and Policy Planning, Civil society, Agricultural Development, Food Security Programs and assistance for all other sectors.

As mentioned in the data chapter the conflict data for the quantitative analysis for sectoral aid considers two different facets. They are: the isolated acts of inter country violence and the international conflict data where at two parties were involved with one being the government. Regression analysis reveals that only food security programs have both economic and statistical significance in lowering inter country violent activities. Food safety and security generally target the impoverished and deprived citizens of a particular geographic area. In Sub-Saharan Africa and Asia hunger has been a cause of riots and instability. Hence, providing emergency cereal and food can mitigate regional violence at least in the short run. Although agricultural assistance and economic infrastructure also have a negative effect in mitigating inter-country violence, the effects were not statistically significant. The other sectors were found to have positive effect on inter country violence with only assistance for health care being statistically significant. Analysis of international conflict shows that only agricultural development has economic and statistical significance on decreasing conflict. Aid towards education and civil society also have a positive effect on decreasing international conflict, however these effects were not statistically significant. Total assistance, grants, loans and foreign direct investment again show a negative and statistically significant effect on decreasing conflict. Government administration, food aid/security programs, economic development and basic health care all have a statistically significant positive effect on the increase of

conflict. Aid designated for education policy has a positive yet statistically insignificant effect on decreasing international conflict.

It is not concluded that aid for basic health care, education or economic development increases conflict and violence. The results only show that aid for these areas are not properly directed and executed. The overall grants, loans, aid and investments provided on other sectors in the impoverished conflict laden nations is clearly not serving the purpose as well. The aid policy focus and distribution mechanism needs a re-evaluation. The donors must be able to identify and forecast conflict laden countries from beforehand and aid them before they reach the status of “failed states”. Most importantly, more resources have to be allocated towards agricultural development and food security programs for the conflict-laden poor countries.

Since, it was concluded that the aid policy needed re-evaluation; chapter VI develops international agricultural development strategies for aid agencies. The theoretical model of this chapter proposes to estimate the cost of conflict and thereby mitigating violence through market development. The model contemplates current World Food Program (WFP) mechanisms of food procurement in Sudan. Through the regional procurement program WFP intends to increase the supply and production of Sudan’s domestic cereal production. However, due to conflict, weak infrastructure and low technical expertise Sudan’s cost of cereal production is higher than the developed world. To mitigate conflict and make Sudan self sustainable in food production WFP has to incur a “cost of conflict” that would entice the citizens to give up conflict and join the agricultural labor force. The model calculates the counterfactual supply, which can be

defined as the optimum supply in the absence of conflict in Sudan. The model computes a switching cost for labor to divert from conflict, possible profits, and above all, the possible cost of conflict. The cost of conflict is expressed through the price disparities, intrinsic utility of joining agents engaged in violence, the number of agents and the distribution of the utility functions.

It is postulated, if the value of the production increases then WFP will intend in to pay a higher equilibrium price to the farmers. Policies such as school lunch programs are proposed to accomplish that goal. On the contrary if the cost of production increases, so will the equilibrium contract price. Otherwise, the citizens would not find it optimal to switch to farming if they are not paid sufficiently to cover for their costs. Also, the model shows that if the benefit from engaging in conflict is high, then in order to induce the agents to give up conflict, WFP would have to pay a higher price to reduce conflict. For the successful implementation of such a purchase program, the production cost of the agents must be bounded implying the price of the crop should not be too high. The model also shows that the total value of the program must be higher than the total intrinsic utility of joining in conflict. Therefore, WFP must devote enough resources to initiate the program. After, successful mitigation of conflict, the donor can design mechanisms to decrease the production cost. Sudan case study has revealed that building infrastructure, technology transfer, availability of inputs and subsidies would strengthen local markets in the long run.

Chapter VII is a supplement to chapter VI. One of the primary assumptions of the previous theoretical model was that conflict is has a direct causal relationship with

commodity prices. Even if WFP procures cereals and assists local markets of Sudan, appropriate food cereals have to be identified. Causal chains between commodity prices and conflict would assist policy makers to choose appropriate commodities. However, the usual process of policy analysis in economic science is more inclined on rejecting a false hypothesis. While, this approach may be beneficial for hypothesis testing, for policy purposes it may be flawed. Additionally, before enacting conflict mitigation policies through food security a donor entity must verify the underlying causalities (direction) between different commodities and conflict. This chapter establishes 1) causal relation between conflict and commodity prices; 2) proposes a policy analysis method with smaller data sets; 3) discovers appropriate commodities that would assist in eradicating conflict in Sudan.

The violence data for Sudan consisted of monthly fatalities from 2004-2010. The commodity prices data comprised monthly average prices of the three major commodities: Sorghum, Millet and Wheat. The initial method used in this analysis resembles the ones that are used in chapter III. Directed acyclic graph analysis through GES algorithm shows millet prices are the root cause of violence in Sudan. It appears millet prices move both violence and the prices of the other commodities. It is discovered that an increase in the commodity prices enhance the levels and intensity of conflict. Intuitively, it can be predicted that intensity of violence would be enhanced with the rising food prices, especially in a developing nation. To examine if conflict has similar effects on commodity prices, a condition upon violence is imposed, such that affect of violence can be estimated. Under such presumption, it is discovered that

information passes to sorghum prices from violence and subsequently moves through millet and wheat prices.

Since, the revelation is based on only 92 data points and the underlying distribution of the variables do not follow a multivariable normal pattern; the confidence levels of these discoveries are rather low. However, during times of severe insecurity, decisions have to be enacted even if they do not have “high confidence intervals”. Therefore, a Bayesian bootstrapping method is proposed where the scenarios are iterated a hundred times and the most common causal directions are chosen as the best policy. The results of the bootstrapping method show that millet has the highest probability to be related with conflict. It is also discovered that both the homegrown crops sorghum and millet are more likely to be affected from conflict than wheat.

8.3 Conclusion

The intentions of the donor entities are generally commendable, yet the results have not always been desirable. It is evident from the proceedings of this dissertation that development policies proposed by the donors are controversial and has room for improvement. Violence and injustice can only be mitigated with carefully crafted strategies. The current mandates ought to be changed to ensure appropriate usage of donor money. Donors should also have a more proactive role in the execution process of development policies and projects. Accountability and participation has to be valued more than evaluation. However, development policies for different parts of the world should be designed according to their particular needs, situation and culture. Utopian

Western oriented policies may not always be successful in conflict prone nations with a high percentage of underprivileged populations.

Conflict must be mitigated in the impoverished nations to ensure sustainable human conditions. The aid mandates, policies and resource allocation need a re-evaluation. It has been shown both theoretically and empirically that current aid mandates have flaws in their design. Assistance policies should be executed with the intentions of affecting conflict directly. Aid bureaucrats also need to propose development policies which are proactive rather than reactive. The resource allocation process as it stands now rewards the nations which through good policies enhance the socio-economic conditions of their citizens. However, the resources allocated through foreign assistance do not improve the living conditions of the poor. It is also concluded that affluent nations do not allocate enough resources to the sectors that are most necessary to mitigate conflict and poverty. Military assistance, government administration and civil society strengthening are assigned the highest amount of assistance in the conflict prone developing nations. However, it is discovered that agricultural and food assistance has the potential of mitigating intra-international violence the best.

Policies for successful agricultural development and food security in conflict prone areas are proposed through estimating the cost of conflict. It is shown that by incurring an optimal cost of conflict a donor entity can mitigate violence in conflict prone areas. This rent can be incurred through payments for farmers who choose to

revert back to farming, abjuring conflict. A causal relationship between commodity price and conflict has also been established which identifies the appropriate commodities to be subsidized.

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APPENDIX

Table 1: Per capita aid disbursed from 1960-2009 from highest to lowest.

Country Name	Per Capita aid USD
Northern Mariana Islands	3287.46
Palau	2725.37
Mayotte	1524.36
New Caledonia	1124.40
French Polynesia	1008.07
Marshall Islands	942.18
Tuvalu	881.14
Micronesia, Fed. Sts.	839.80
Turks and Caicos Islands	573.67
Aruba	307.67
West Bank and Gaza	297.69
Netherlands Antilles	284.30
Dominica	219.86
Cape Verde	216.82
Sao Tome and Principe	195.16
Seychelles	182.56
Israel	179.28
Vanuatu	172.39
Bosnia and Herzegovina	166.12
Kiribati	165.5479
Montenegro	164.9206
Gibraltar	163.9114
Jordan	161.5491
Tonga	155.2711
St. Kitts and Nevis	154.2491
Djibouti	148.3611
Samoa	140.9993
Grenada	138.2145
Solomon Islands	128.2349
Bahrain	125.1349
St. Vincent and the Grenadines	119.1761

Serbia	112.9708
Suriname	111.9862
St. Lucia	103.3261
Macedonia, FYR	90.70664
Comoros	85.99498
Albania	82.54417
Guyana	81.73393
Belize	80.60796
Mauritania	77.68883
Antigua and Barbuda	73.46
Maldives	70.60293
Namibia	70.29088
Timor-Leste	69.90945
Nicaragua	66.69728
Armenia	65.64633
Guinea-Bissau	65.41711
Papua New Guinea	65.31401
Equatorial Guinea	61.71469
Botswana	61.45941
Bhutan	61.43579
Gabon	59.82744
Malta	58.431
Georgia	57.30854
Cayman Islands	52.95951
Lebanon	50.63205
Zambia	48.70011
Eritrea	48.59592
Congo, Rep.	47.71934
Gambia, The	47.04109
Mongolia	46.67421
Senegal	46.47885
Kyrgyz Republic	45.93436
Bolivia	45.1237
Liberia	44.81075
Honduras	43.73292
Iraq	43.28506
Fiji	42.62151
Cyprus	41.77933

Lesotho	41.67071
Moldova	39.30736
Swaziland	38.10905
Syrian Arab Republic	36.74691
Somalia	36.12128
Oman	35.02317
Mozambique	34.97692
Rwanda	34.38936
Jamaica	32.8588
Lao PDR	32.07389
El Salvador	31.19189
Mali	31.13607
Central African Republic	30.91059
Slovenia	29.18013
Tunisia	28.18586
Mauritius	28.14428
Benin	27.39674
Sierra Leone	27.26125
Burkina Faso	26.40877
Malawi	26.39731
Croatia	26.36984
Egypt, Arab Rep.	25.97682
Niger	25.80625
Tanzania	25.6108
Cameroon	24.86305
Burundi	23.7918
Barbados	23.70727
Costa Rica	23.39979
Ghana	23.33558
Cote d'Ivoire	23.21685
Togo	23.16583
Tajikistan	23.16478
Haiti	23.02591
Guinea	22.83656
Yemen, Rep.	22.4561
Madagascar	22.04342
Chad	21.46276
Sri Lanka	20.7678

Azerbaijan	20.70578
Morocco	19.9879
Afghanistan	19.52178
Uganda	18.80927
Zimbabwe	18.41228
Kenya	18.35587
Sudan	18.07048
Cambodia	16.66369
Panama	15.94563
Guatemala	14.59833
Angola	14.22398
Paraguay	13.5876
Congo, Dem. Rep.	12.73695
South Africa	12.47299
Dominican Republic	11.72408
Nepal	11.4402
Peru	11.20753
Ecuador	11.18341
Ethiopia	11.08976
Algeria	10.75945
Kazakhstan	10.69944
Bangladesh	10.54969
Vietnam	10.49432
Ukraine	10.36463
Pakistan	8.934045
Belarus	8.447632
Uruguay	7.68038
United Arab Emirates	7.509304
Philippines	7.497566
Trinidad and Tobago	7.247307
Bahamas, The	6.934877
Turkey	6.803346
Bermuda	6.682933
Singapore	6.541466
Turkmenistan	6.357609
Chile	6.305413
Malaysia	6.053715
Colombia	5.821129

Uzbekistan	5.699346
Brunei Darussalam	5.521949
Indonesia	5.365513
Thailand	5.03875
Libya	4.602349
Nigeria	4.268787
Korea, Rep.	4.081824
Myanmar	3.909543
Cuba	3.72263
Korea, Dem. Rep.	3.139015
Qatar	3.098399
Argentina	2.358403
India	1.937623
Hong Kong SAR, China	1.816266
Macao SAR, China	1.569267
Venezuela, RB	1.537179
Brazil	1.513723
Mexico	1.495312
Iran, Islamic Rep.	1.444393
China	1.39888
Kuwait	0.868335
Saudi Arabia	0.809081

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